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MAN VERSUS MICROBE

MAN is constantly at war with microbes. They seek to invade his body and feed upon his tissues; his body reacts by trying to destroy the invaders before they can do any damage.

In a series of six articles on the biology of infection,* Dr. Robert Cruickshank has given an interesting outline of the main features of this struggle for survival between the lowly parasite and the human host. He has shown that the outcome depends upon the balance between a number of factors—the deadliness or comparative harmlessness of the attacking microbes; the efficiency of their lines of communication; the numerical strength of their attack; the alertness, preparedness and fighting qualities of the body's defences; and the help that medical science can give.

If the virulence and numbers of the invading organisms are small and the general and specific resistance of the body high, the attack is speedily repulsed and there is no outward sign of the fight that has been waged within. Every adult has been the unconscious scene of many such battles and each victory has left him better equipped with defences against subsequent attacks by the same enemy. If the attack is made in great strength, however, or if the body is caught at a disadvantage or has no preformed defences, the microbes gain the ascendancy and the symptoms of disease appear.

The community can help its individual members by searching out and eliminating sources of infection, breaking down the enemy's lines of communication, raising the general level of health and resistance, stimulating the body to develop preformed defences and providing medical aid if disease occurs.

Although it is too early to hope for the elimination of communicable diseases, our counter-measures are steadily improving. They can be successful, however, only if the community without delay translates scientific discoveries into communal action; and the success of that action in turn will depend upon the loyal co-operation of an educated public. It is important therefore that readers who have been interested by Dr. Cruickshank's articles should do what they can to pass on to others the information they have gained.

We must aim at giving every citizen a knowledge of how disease is spread and resistance to it increased. Then he will be more able to guard his own health and less likely to endanger the health of others.

* *Health Education Journal:* July and October, 1943; January, April, July and October, 1944.

CLEAN AIR

By J. Johnstone Jervis, M.D., D.P.H.

The Scene

"Where every prospect pleases and only man is vile." How appropriate these old familiar words seem, as standing on a rising ground in the vicinity of a great industrial city in Yorkshire, on a morning in Spring, one contemplates the surrounding scene. In front to where the Pennine range touches the sky stretches out the incomparably beautiful hills and dales of this county of 'Broad Acres,' while behind, dimly visible through a blanket of thick smoke, lies the city, its towers and spires and the chimney stacks of its great factories appearing like shadowy streaks through the haze. The contrast is arresting. On the one hand the brightness of the sunlit hill and on the other the gloom of the only patch of grass visible in the centre of the city which serves at once as an open space and a recreation ground for the occupants of the professional and business houses that exist in its vicinity.

It was not always thus. In contemplative mood one's mind strays back to a time a little more, perhaps less, than a hundred years ago when the land on which the city stands was part of this same colourful scene. The well-wooded ridges ran down through field and cottage garden to the edge of a clear sparkling river, with the houses of the people, the factories and the public buildings standing out against the green. There was no smoke here, nor grime, nor anything that at all resembles the conditions that now exist.

The Transformation

What has happened to bring about such a transformation? The answer is that Industry, viewing the site and seeing that it was a place to be desired and one which lent itself to development, took possession, built its factories and its mills, its warehouses and its shops, drew to it railway and canal and the great turnpike roads that lead from it to places far and near, thus giving it size, importance and wealth, but at the same time fouling its air with the products of the coal consumed in its domestic grates and factory furnaces. So was created the Inferno which stands in such marked contrast to the Elysia of my opening sentences.

Yes, there are riches and power in that great city and its fame has gone abroad to the ends of the earth for its achievements in the world of industry and commerce, but at a price in human life and health too great to be measured in figures or set out on the pages of a business ledger. Before the change, a child might hope to survive as a normal healthy being till the burden of years brought him to his last resting place, but now to live at all,

much less survive till old age, he must be of Titan breed able to contend with this aerial plague that envelops him and seeks to destroy his life, or what may be as bad or worse, leave him with a body that is stunted and deformed.

And so I am brought to speak in greater detail of smoke and its effects.

What Smoke Is

In the first place let us consider what smoke is, how it is made and what it is composed of. Smoke is the product of the burning of coal, particularly coal of the soft or bituminous variety. It is made in the furnaces of our mills and factories as well as in the grates of our homes and workplaces. Millions of tons of coal are consumed in this way each year and for each ton there is a corresponding amount of waste in the form of smoke. Coal is burned for the heat and energy it contains, but the method of using it in the factory furnaces and especially in the open domestic grate is most uneconomical. Only a portion, and a small portion at that, of the heat and energy stored up in it is extracted; the remainder is discharged into the air and lost. But that is not all the story: if you consult the chemist he will tell you that this same smoke with its soot, tar, grit and sulphuric acid is capable of being converted into all sorts of useful substances—drugs, dyes, fertilisers and even perfumes. When, therefore, we seek to evaluate the worth of the coal consumed in our factories and dwelling-houses we should not fail to take into account what is lost in the form of smoke. Why all this fuss about the loss of a few tons of coal, you ask; is there not plenty more where it came from? Yes, there are still big reserves of coal in the country, but are they so great that we can afford to squander them? Experts who have investigated the position, tell us that these reserves are by no means inexhaustible. Indeed, so serious have been the inroads already made into them, particularly during the war, that they can almost forecast the time when the last ton of coal will be brought to the surface. When one reflects how dependent the nation is on coal and how soon the industrial machine and life itself would come to a complete stop without it, one begins to appreciate the necessity of conserving our stocks.

Where Smoke Goes To

The next question is—what happens to smoke after its emission from the chimney, where does it go and how is it disposed of? As indicated, smoke consists of soot, tar and grit. The grit being heavy falls to the ground almost as soon as it leaves the chimney. Wherever it falls it forms a film of grey dust which settles on roofs and window ledges, and even finds its way into the interior of the house. Certain industrial undertakings emit so much grit that it becomes a very serious nuisance. The soot and tar are much lighter and are carried by the wind for greater distances. It has been

ascertained, for example, that the soot which forms a dirty black fringe to Lake Keswick in Cumberland, came originally from the mills of Lancashire many miles away. The significance of this is that smoke knows no boundaries. Not only does it foul the city of its origin but places far beyond. The weight of soot actually deposited in some parts of the city may amount to as much as 200 to 500 tons per square mile, and in the country around the deposit may still be very considerable.

What Smoke Does

What does it do? Its most obvious effect is to blacken and disfigure buildings. One has only to compare a building, a church for example, in the centre of the city, with one in the depth of the country to appreciate this effect. But the influence of smoke on buildings is not limited to discolouration, it affects the fabric as well. The mortar is loosened and the surface of the stone pitted and disintegrated so that in time expensive repairs and replacements have to be undertaken. Every builder and city architect knows the terrible ravages of smoke on buildings causing the loss of many thousands of pounds annually.

The tar attached to it makes the soot sticky so that when it comes into contact with anything, say a window-pane, it adheres to it. For that reason window cleaning in an industrial area imposes a greater burden on the household budget than in the country. Sometimes when a window in a town building has been allowed to go for some time without cleaning there is the utmost difficulty in getting this sooty film dislodged and powerful solvents have to be used in the process.

Its Effect on Dead Things

Everyone is familiar with the appearance of iron which has been exposed to a smoky atmosphere. It is covered with little pits or holes, and if the exposure has been for a lengthy period a great part of the substance may actually be lost. I have seen metal railings originally three-quarters of an inch in diameter reduced to the size of a lead pencil and some entirely eaten away. This action is caused by the sulphuric acid in the smoke which is strongly corrosive and has a particularly destructive effect on stone work and metals. It also attacks fabrics. A particle of soot—a smut so-called—allowed to lie on a piece of silk will very soon burn a hole in it. It is for that reason that fabrics of all sorts have a much shorter life in urban than in rural districts; paintwork suffers in the same way and has to be constantly renewed if it is to retain its fresh appearance and to give to the metal or wood the protection that is intended.

Its Effect on Living Things

If smoke has this effect on inanimate things like iron and stone it cannot

fail to be injurious to living things as well. That this is so is well-known to farmers and gardeners, especially in the vicinity of large towns, whose work brings them into contact with the soil and with growing crops. Whether it be tree, flower, vegetable, corn or grass, the effect is the same; smoke retards growth, destroys form and colour, and ultimately kills. There are large tracts of land in the industrial belts of England rendered barren and unproductive by smoke.

Its Effect on the Human Body

What about human health? Is that affected? Undoubtedly it is and in many ways. The rays of the sun are necessary for normal growth and development; without them the child cannot thrive or make the bone necessary to give him a sound healthy framework. The adult, too, needs the sun to build up his resistance to disease, and enable him to ward off infection. As well as an aid to physical health, sunshine is also a mental tonic; it cheers, invigorates and gives us the feeling of being on top of the world, the *joie de vivre* as the French call it. Gloom is not only subversive of physical well-being, but it also depresses the mind and creates melancholy. For optimum health there must be abundance of sunshine. Smoke forms a screen which shuts out the rays of the sun, especially those rays which cleanse, protect and energise—the actinic or ultra-violet rays as they are called. In the centre of our industrial area less than 30 per cent of these special rays get through to the people. The result of this deprivation is seen in the stunted growth, pale faces and deformed limbs of the children. When winter comes and the cold weather, fog makes its appearance, but fog in a city is very different from fog elsewhere. It is black, dirty, evil-smelling and evil-tasting; it fouls everything it touches and is most irritating to the lungs and respiratory passages. The result is an increased number of lung complaints and a greater number of deaths from such diseases as pneumonia and influenza. Yes, smoke kills people as well as plants.

Making Good the Damage

To make good all this damage is a costly business amounting to millions of pounds a year, to say nothing of the waste of time and effort and of human life and health. There are men and women, the housewife herself is probably the best example, who spend their days removing the effects of smoke and repairing the damage done by it. All this unproductive labour is just so much unnecessary drudgery imposed upon the people by the people themselves, of their own choice, and because they will that it shall be so. They are not compelled to use raw coal; there are other and better alternatives. Gas, electricity and the various kinds of coke will give all the heat and energy needed to drive the mill or heat the home, and without smoke. Tradition is a good servant but a bad master. Too long have we

been its slave and suffered under its rule. In the new era of progress that we are promised after the war let us cut adrift from the bad ways of the past and start afresh with clean homes, clean factories and clean air.

The Moral Aspect

One final question! Have we any right to pollute the air which others must breathe? The answer is we have no more right to pollute our neighbour's air than we have his food or his drinking water, and to do either of the latter would bring us into conflict with the law. On moral as well as on physical grounds, therefore, we should abandon the use of raw coal and turn to smokeless sources for our heat and power. Because the law at present does not oblige us to do this is no justification for being unneighbourly. There is no virtue in refraining from doing what the law forbids us to do, but to do what we know to be our duty and the best for others without the intervention of the law is the action of the good neighbour.

BIOGRAPHICAL NOTES

THOMAS BEDFORD, D.Sc., Ph.D., M.I.Min.E.—member of scientific staff, Industrial Health Research Board of the Medical Research Council; Lecturer, London School of Hygiene and Tropical Medicine. Author: *Modern Principles of Ventilation and Heating*, various official reports and papers in scientific journals.

SIR PATRICK ASHLEY COOPER, B.A., LL.B., Director General of Finance, Ministry of Supply, 1939; Governor, Hudson's Bay Company; Director of the Bank of Engand; Deputy Chairman, Northern Assurance Co., Ltd.; Member London Passenger Transport Board since 1933; a Lieutenant of the City of London and High Sheriff of the County of London.

ROBERT CRUICKSHANK, M.D., M.R.C.P., D.P.H., Pathologist in the L.C.C. Public Health and Hospitals Service. Has contributed to the literature on intestinal infections, puerperal sepsis, pneumonia, hospital cross infection, etc. Joint editor of *Control of Common Fevers*; was Milroy lecturer at the Royal College of Physicians in 1933 and a Chadwick lecturer in 1933.

MARY FIELD, M.A.—Entered the film business after two years of teaching and some postgraduate research in history. Probably best known for the production of the *Secrets of Life* series of short films and for her work in introducing the diagrammatic film into this country. Director of the G.B.—Odeon Children's Film Department, which will produce entertainment films for children. Author of several publications.

THE BIOLOGY OF INFECTION*

VI. MAGIC BULLETS

By Robert Cruickshank, M.D., M.R.C.P., D.P.H.

An American professor of Public Health has lately written a book called *The Conquest of Epidemic Disease*, in which he traces the progress which man has made in his fight against infection since the days when disease was attributed to a visitation of devils, or the wrath of God, or a disturbance of the four bodily 'humours.' When he speaks of the conquest of epidemic disease he means, of course, that infection is no longer a mystery for we know much about the nature of the parasite, where it lives and how it produces infection, its channels of spread and how they may be blocked. We know, too, how man contributes to the spread of infection by congregating in large towns, by living an unhygienic existence and by improper feeding. With this knowledge, the conquest of epidemic disease should certainly become a practicable possibility but victory will not come quickly, for success depends in large part on an evolutionary improvement in man's economic and hygienic standards. Meanwhile, we have been witnessing warfare of a different kind against the citadel of disease in the form of biological and chemical attacks upon established infection.

Serums and Vaccines

Fifty years ago the student of medicine was taught much about the diagnosis of disease but little about its treatment, for the wise physician had to admit that such 'medicines' as he could prescribe were more a *placebo* for the patient than a cure for the infection. Indeed, at the beginning of the twentieth century there were only three or four drugs which could be regarded as specific cures—quinine for malaria, ipecacuanha for dysentery and mercury and iodides for syphilis. There was also antitoxin for the treatment of diphtheria. Impressed by the knowledge that one attack of a particular infection usually protected the individual against subsequent attack, French and German workers conceived the idea of producing this protective substance artificially in animals. Working with the diphtheria bacillus, they first discovered that this micro-organism secretes a powerful poison or 'toxin,' and by injecting repeated sublethal doses of this toxin into a rabbit, they found that the blood-serum of the inoculated rabbit could, when mixed with the toxin, neutralise its poisonous action. They then produced this antitoxic serum on a larger scale by the injection of

* The last of a series of six articles published in the Health Education Journal.

horses, and when they tested this 'antitoxin' on patients with diphtheria, they were amazed and delighted to find that the new serum could save the lives of children who would otherwise have died. Since then, diphtheria antitoxin has been so improved and refined that a curative dose can be given in a very small volume without causing any upset to the patient. Antiserums have also been prepared against other bacterial toxins, e.g. antitoxins against tetanus and gas gangrene; or against the bacteria themselves, e.g. antiserum for the treatment of pneumonia, meningitis, anthrax, etc., but it is only fair to say that none of them has been so brilliantly successful as diphtheria antitoxin. One very important point about the therapeutic use of specific antiserum is that it must be given as soon as the particular infection is diagnosed or suspected. Thus a child with a sore throat that looks as if it might be diphtheria must be given antitoxin at once, for a delay of hours may be fatal. Unfortunately, diphtheria, because of its insidious onset, may not be recognised early enough by parent or doctor and this is a strong argument for the immunisation of children against diphtheria.

Protection against infection by the inoculation of inactivated bacterial toxin (toxoid) or by killed bacteria (vaccine) which stimulates antibody-production in the host himself has been used in a variety of diseases since Pasteur's classical experiments in the protection of sheep and cattle against anthrax. This method of protection, while ordinarily given to those who may be exposed to the risk of infection at some future date, is also sometimes used to protect an individual after exposure has occurred, e.g. after a bite by a mad dog or after contact with a case of small-pox. Vaccines are also prescribed for the treatment of established, usually chronic infections, e.g. for recurrent boils, or infected sinuses. In such a case, the bacteria causing the infection are used to prepare an 'autogenous' vaccine, of which a series of doses are given to raise the individual's resistance to the infecting organism.

Chemotherapy

After taking a leading part in the discovery of therapeutic antisera, Paul Ehrlich, that man of genius, turned his attention to another mode of attack upon infection. His demonstration of the value of aniline dyes for staining bacteria gave him the idea that these dyes might be injected into the animal-body to destroy the invading parasite without affecting the host. His first attempts, not without success, were carried out with methylene blue against the malarial parasite. Later he used 'trypan red' against the sleeping-sickness trypanosomes which could be adapted to infect small experimental animals like rats and mice. Not only did he cure the infected mice with trypan red (the precursor, incidentally, of Bayer 205, which has been used so successfully for trypanosome infection in man) but his early experiments gave the clue to the mode of action of this new 'chemotherapy,' for he found that

the dye did not directly kill the parasite but in some way made it an easy prey for the host. In 1910, Ehrlich discovered salvarsan, the organic-arsenical cure for syphilis, and so justified his steady search for the 'magic bullets' which when introduced into the body were to seek out and destroy the invading parasite without damaging the host.

Although Ehrlich's work led to widespread research for new and better chemotherapeutic drugs, little progress was made in this chemical warfare against bacterial as contrasted with protozoal infections except in the discovery of local antiseptics like acriflavine. However, in 1935, Domagk in Germany reported cure of streptococcal infection in mice and men with a new dye, called prontosil, and in the following year his claims were confirmed in this country. The active principle of prontosil was found to be the colourless substance sulphanilamide which, like Ehrlich's dyes does not directly kill the parasite but prevents it from multiplying. Such substances are therefore 'bacteriostatic' and not bactericidal as are disinfectants like phenol. In 1938 sulphapyridine (M. & B. 693), active against pneumococcal infections, was discovered, and since then a variety of these sulpha-drugs have come into use. There are now few bacterial infections which are not susceptible to sulphonamide-therapy, but we must remember that these drugs only prevent growth of the parasite and that the host's tissues must complete the 'kill.' In many instances the tissues are already severely damaged by the infection or have lost their reactivity through age so that they are incapable of playing their part in ousting the invader. Thus, while sulphonamide-therapy has reduced the mortality from pneumonia in young adults to one-third of the pre-sulphonamide level, it has made little impression on pneumonia in older people.

In recent years, a new line of attack has been developed on the principle of "set a thief to catch a thief." About a quarter of a century ago it was discovered that many bacterial species were infested with a lytic agent which quickly destroyed them in artificial culture outside the body. The hope that this lytic agent, called bacteriophage, would prove useful in the treatment of certain bacterial infections, e.g. typhoid and dysentery, has, however, not been realised. Then in 1929 Fleming noticed that a green mould, appearing as a contaminant on a plate of culture-medium, had inhibited the growth of a pathogenic staphylococcus. From this chance observation there developed the new substance penicillin, which has been hailed as the almost perfect antibacterial drug because it is active against a wide variety of bacteria, is practically non-toxic to tissues, and is unaffected by the presence of blood or pus. But it is an unstable substance, readily destroyed by oxidation, by acids and alkalis (hence it is ineffective if given by mouth because of the stomach-acids), by heavy metals and by certain bacteria, and like the sulphonamides it is bacteriostatic rather than bactericidal, so that it cannot cure those who cannot help to cure themselves.

New Worlds to Conquer

With this armoury of new weapons, it might be thought that infection has lost most of its terrors. Certainly the direct attack upon the parasite in its human reservoir has much to commend it, for if the bacteria are destroyed at source, they cannot spread to other susceptible hosts and must in time cease to exist. However, there is still much unconquered territory; for instance, certain bacterial infections, e.g., tuberculosis, typhoid and whooping-cough, are unaffected by the new chemotherapy. These drugs are also powerless against most virus infections, so that diseases like measles and infantile paralysis still play havoc among our children. Moreover, specific antisera are useless in the treatment of virus infections, although if given in the incubation period they may modify or even prevent the infection, as happens with convalescent human serum in measles. Another problem which may cause us much worry is the apparent increase of infections of the brain like the sleepy sickness that appeared at the end of the 1914–18 war. So far we have found no answer to these strange brain-diseases, an apt illustration of the fact that the struggle, man versus microbe, still goes on.

BIOGRAPHICAL NOTES

J. Johnstone Jervis, M.D., D.P.H.—Medical Officer of Health, City of Leeds, Professor of Public Health, University of Leeds. Born in Stobo, Peebles-shire, Scotland. Educated Edinburgh University and University College, London. Formerly Assistant M.O.H., County Borough of Croydon, and Acting M.O.H., Leeds, 1917–1918. Medical Officer of Health, 1919. Fellow of the Society of Medical Officers of Health and Fellow of the Royal Sanitary Institute. Has contributed numerous articles on the Public Health Service to Medical Journals.

Rev. George Kendall, O.B.E., C.F.(Retd.). Minister of the Methodist Church. Served throughout the last war in France and the East. Promoted Senior Chaplain of the 63rd Royal Naval Division. Educational Officer on the Rhine; stationed for a long period at the venereal hospital, Wiesdorf. Chairman Public Morality Hyde Park Meetings. Lecturer for the British Social Hygiene Council. Has lectured over 1,000 times in Hyde Park.

David R. Mace, M.A., B.Sc., Ph.D. Secretary of the Marriage Guidance Council. Author of *Does Sex Morality Matter?*

James Milne went out to Ethiopia with the Friends' Ambulance Unit in 1942 and spent most of his time at the clinic in Debra Birhan. His observations are naturally limited therefore to the experience he had in this one clinic.

THE DISCIPLINE OF THE NORMAL CHILD*

By C. W. Valentine, D.Phil.

The Problem of Discipline

Let us turn now to some more practical questions of training in early childhood, and in particular the problem of discipline. There has been, especially since the last war, a revolt against the old Victorian severity, and few of us, I imagine, wish to return to that. Not only were punishments frequent and severe but the life of the child was too serious and dull. I was expected by my father to entertain myself chiefly with books or a quiet walk alone on a Saturday afternoon; joining in the school games of football and cricket was thought to be unnecessary, and football indeed, because of its association with gambling, was thought almost of the Devil. John Wesley was horrified when he found that masters at Kingswood School not only allowed the boys to play, but even played with them! Nevertheless, though the revolt from such misunderstanding and severity is welcome, it is worth asking whether the reaction has not spread too far in some quarters.

There are various causes of increased laxity of discipline in many modern homes. During the last war, and during the present, the absence of the father from the home was and is, I think, one cause; another was the idea that life being possibly very short, youth should have its fling for the time. Perhaps more fundamental, and more dangerous, has been the doctrine that all repression is bad, a doctrine based upon the teaching of Freud.

Let us examine this a little more carefully. The essential thing to recall is that Freud was concerned chiefly with the fundamental impulse of sex, and that the cases he studied were largely those of neurotic people who came to him for treatment. Even so, Freud never taught that repression in the popular sense was harmful; repression meant for him a shirking of the problem, a refusal to recognise that something is being sacrificed. A healthy deliberate choice of the course B when it is realised that A, so much desired, is the less desirable, was not held to be harmful even by the psychoanalysts. Furthermore, even supposing such repression of sex were always harmful, it is fallacious to assume that the repression of such minor impulses as that of punching your playmate's head or throwing stones at windows, or even drumming fingers on the desk, would be equally harmful.†

* An article upon Problem Children was published in the July issue of the Health Education Journal.

† For full discussion of this topic of repression and of most other problems dealt with in this article, see Valentine, *The Difficult Child and the Problem of Discipline.* (Methuen, 1940.)

Much misery in the home and much harm in the development of children has in my opinion accrued from this idea of the wrongness of all restraint. May I just give two cases? One was reported by my medical son—the case of a little girl of four who had her mother so much under her thumb, and who used such tantrums to get her own will at the slightest provocation, that a complete nervous collapse of the mother followed. The removal of this little girl to her grandparent's home, where she was firmly though wisely handled, resulted in a tremendous improvement within a few months, but the mother's condition was too serious to be quickly remedied. The second case is from my own personal experience. Once when staying at an hotel with my little boy of nine, I wished to go to a theatre in the evening and left him playing in the hotel lounge with a promise to go to bed at nine. Next evening the mother of a little girl of about the same age told me how astonished she had been because my boy in my absence had said about nine o'clock that he must go to bed as he had promised. Then *in the presence of her little girl, Mary*, she said, "I often tell Mary to go to bed, but she won't," and she looked at the child with a fond, fatuous smile, the child giggling meanwhile!

The Child's Attitude

Children themselves may come to regret such laxity of discipline. Enquiries have shown that boys at least do not really like too soft and lenient a master. As Dr. Cyril Norwood says, "Boys are strange creatures who play the fool and yet strongly resent the fact that they are allowed to do it." One of my own boys, when a young man, told me I ought to have 'coshed' him more!

Some children themselves seem to have more sense here than the advocates of extreme freedom. I told two of my own children some time ago about a certain experimental school in which children were allowed to do pretty much as they liked, and gave a few examples of what was permitted. My boy of thirteen listened quietly and then said, "Is this a new kind of religion, or are the people dotty?"

We may at least be sure that if we put no restraint on the wilder and more aggressive children, other children will eventually take discipline into their own hands.

Is Discipline Needed?

It is possible that some broken homes produce their 'problem children,' chiefly through weak discipline—especially when the father has deserted the home. It is worth noting that among Burt's 200 juvenile delinquents, only 10 per cent came from homes where the discipline had been very severe, while 25 per cent came from homes where the discipline had been too lax.

All this does not mean that there is any virtue in *discipline for its own sake.* There are plenty of occasions when for the sake of his own health, or for the safety of himself and others, or for the reasonable quiet and comfort of his parents, a child's aggressiveness or boisterousness must be restrained. But do not let us *invent* occasions of discipline with the idea that even purposeless discipline is good for children (or, as some apparently think, for soldiers). For example, the rule that a class shall sit in silence for two minutes with arms folded, or that girls shall not speak to one another in the corridor during change of classes, seems to me simply silly. Also when children are old enough to understand the reason for discipline it should be given.

Furthermore, discipline must always be shown to be consistent with love. There are significant figures showing that the child who feels himself unloved by both parents is very likely to become a problem child—though the over-petted child seems to provide a similar number of cases.

The child will best realise our love if we are constantly trying to help him to satisfy his *legitimate* wishes. And that brings me to my next point—that the ideal is to avoid the need for restraint and discipline.

The healthy young child is a bundle of strong, innate impulses—to run about, to shout, to explore the unknown (if necessary by breaking things up), to experiment and to seek adventure. The wise parent or teacher will seek as far as possible to provide legitimate outlets for such impulses—if only on the ground that "Satan finds some mischief still for idle hands to do."

For the infant of two to five or six some safe, plainly furnished room is desirable where he can play as he will without damage to self or things. For the child a little older something more adventurous is wanted. We always allowed our children to climb trees and dig pits and generally to make a mess of some part of the garden—provided the mess was cleared up afterwards. Obviously such rooms or gardens cannot be found for the children of many poor houses, and here comes in the special need of Nursery Schools for the children of crowded town areas.

The young adolescent still needs freedom in the use of his leisure, in the choice of occupation, in the observance of religious forms. As to my own children we never made attendance at church compulsory. It was rather a *privilege*, only conceded when the child was old enough at least not to disturb others and to begin to understand a little of its meaning; and I had no reason later on to regret this principle.

But it must be confessed that, however we may cater for the natural impulses of childhood, there will be some occasions for restraint or discipline for all, and many occasions for some young children, if only for the sake of their own bodily safety or that of other children. One or two of my young adventurers would probably have lost life or limb but for severe restraint on occasion; and destruction of clothing or parental or other

property would have been an even more substantial item than it was. In school the best type of teacher can often dispense with penalties almost entirely, though not always with some children.

Guiding Principles

Granted, however, that some restraint or even penalty may at times be necessary, can we find any guiding principles of discipline and moral training? May I suggest a few? The first, as I have already hinted, is to seek out any *environmental cause* of misdemeanour and if possible to remove it; to provide for active, healthy activity and not to rely on repression.

The second principle I would call the principle of *gradualness*. We must not expect the standard of conduct to rise too suddenly. In particular we should avoid putting too great a strain on the child's moral development in early years. Thus in trying to develop the habit of telling the truth, we must beware lest too great fear of punishment leads the child to break through the young habit. At a tender age it is necessary to shield a child from severe temptation to any kind of wrong doing. My daughter recently found a little girl of five and a half in an infant school stealing 11 o'clock luncheons from others. Enquiry showed that she was the only child in the class who had no luncheon provided by her mother. Yet she was expected not only to watch the others eat, but to bow her head and say 'grace' with the others before they enjoyed their meal! Under such a severe strain a habit of stealing may begin and, once begun, be hard to eradicate. The 'principle of gradualness' then is, I think, of first importance in the training of the child.

A third principle is that of *consistency*. It is futile to punish for an offence one day and condone it the next; or to threaten a penalty repeatedly and then remit it if there is violent opposition. Even *once* giving way (unless for some special reason) may spoil the results of weeks of training. The child will hope that it may happen again. One well-trained child was teasing his mother at a home party for something she had refused. The mother said, "Don't you know that when Mother says 'No' she never changes her mind?" "*Once* you did," was the answer. That once had also been on an occasion when visitors were present.

The principle of consistency would also usually rule out too violent a change in the severity of discipline. Thus one difficult boy, about whom I was consulted, had been whipped by his father *for the first time* at the age of nine, and he immediately ran away from home. Even where parents or teachers become convinced that their methods of discipline are wrong, it is doubtful whether too sudden a change is advisable. Much, however, will depend on the degree of severity or laxity and on the age and sensitivity of the child. Discipline is especially resented by a child who has been pampered in earlier years and then has to be restrained, yet sometimes a sudden and

severe check to a violently aggressive boy may be wholesome and necessary.

A fourth principle is that of *co-operation*—co-operation between home and school, and between the two parents in the home. As to home and school co-operation, we must hope for some improvement with the extension of Parent-Teacher Associations and with the introduction into adult education of courses dealing with the bringing up of young children.

It is selfish neglect of duty for the parent to leave the unpleasant task of restraint and discipline to the school teacher, who sometimes, when trying to inculcate habits of cleanliness or tidiness, is faced with the rejoinder, "Mother doesn't make me do that."

The need for co-operation between parents is a neglected topic. My own enquiries among students suggest that the parents often take an unequal share in discipline. Among the parents of problem children actual disagreement as to discipline was frequent in 41 per cent of one large group of families studied; and it is notable that disagreement was especially marked as to the discipline of the difficult child.

The intelligent child will detect differences between the parents even where there is no open dispute, and he will naturally agree with the one that most fits in with his own wishes. The indulgence of the first parent makes necessary a firmer control by the second, and vice versa; and so a vicious circle is set up. Also the indulgent one will not realise that his or her indulgence would be impossible but for the restraining influence, and perhaps severity, of the other.

Still worse is it when the parents or other relatives openly dispute about the discipline of the child. Thus, one mother who consulted me recently about a very difficult boy, told me that when she reproved the boy for misdemeanours the grandmother would reply openly in the boy's presence that he would be 'all right' if his mother would leave him alone. Is it any wonder that when he was finally punished for a serious offence he ran away to his grandmother's home?

Such differences between parents are difficult and delicate matters to deal with. Here again it is to be hoped that if adult education can include courses in the upbringing of children some greater measure of co-operation may be secured. The records of child guidance clinics show that in some cases friendly advice can at least lessen such differences between the parents.

Corporal Punishment

A few words may be said on the difficult subject of corporal punishment, though it is perhaps dangerous to give only a brief treatment of this controversial topic.*

* See Valentine, chapter on 'Corporal Punishment' in *The Difficult Child and the Problem of Discipline.* (Methuen 1940.)

Here again I imagine no one wishes to return to the old custom of using corporal punishment as the main penalty, when penalties are needed. I must also confess personally to a strong revulsion against the giving of corporal punishment in cold blood, while recognising the danger of inflicting it under the influence of strong feeling. On the other hand I do not think that some of the modern ideas as to the extremely degrading nature of corporal punishment can withstand careful examination.

The fact that a few abnormal persons have found sexual excitement in either giving or receiving corporal punishment is no proof that this is anything but exceptional. Or again, consider the statement that it is degrading. (I leave on one side Dr. Cyril Norwood's argument that it *should* be felt to be a disgrace, and I also leave out of consideration the question of corporal punishment for older adolescents.) My own three boys, who were at a Public Day School where corporal punishment was still occasionally used, simply laughed at the idea that it was felt to be a degradation. One of my research students in an enquiry among nearly 3,000 school children found that the majority of boys under fourteen years of age seemed to think the cane an appropriate and the most effective kind of punishment: older children, especially girls, thought it should be confined to the punishment of bullies.

When 300 of the children were asked which punishment they would prefer out of the following: (*a*) two strokes of the cane, (*b*) 500 lines to be done at home, (*c*) half an hour's detention in the school; of the boys 90 per cent chose the cane, and so did 37 per cent even of the girls, mostly because it was quickly over.*

We are here primarily concerned with the young child, and, speaking as a father, I can only say that occasionally, with at least four of my five children, and especially with two of my boys, at early ages when reasoning could not be understood, some slappings were necessary if only to prevent them from serious injury through experimenting with lighted gases, and though other dangerous tricks which they played with their younger brothers and sisters. Particularly was this so with one or two who were so cheerful and resilient that milder punishment, like standing in the corner, or deprivation of food luxuries, were of little use. Thus, one boy of four years (with a mental age of about five and a half), after I had stood him in the corner for a quarter of an hour, came up to me afterwards in a most friendly way and said, "Daddy, do you know what I do when you put me in the corner?" "No, what do you do?" "I tell God funny stories." What *can* you do with a child like that when he indulges in practices dangerous to himself and to other children, or constantly disturbing to adults?

I view with some concern the extreme laxity of discipline shown to some

* See K. D. Hopkins' article 'Punishment in Schools,' *British Journal of Educational Psychology*, Vol. ix, Pt. 1, 1939.

young hooligans. A friend of mine at a child guidance clinic recently heard one boy asking a friend, who had been to a reform school, what it was like. "Oh, it's all right," he said, "you get comics to read in bed," and then the other boy expressed his inclination to try this pleasant holiday resort.

One of my student teachers told me that a boy of his recently boasted to him that the magistrate of the court to which he had been summoned told him that he *ought* to 'express himself.'

Perhaps there is no question of training, however, in which individual differences between children should so completely determine our actions. Many children are so sensitive to mild criticism that even the slightest corporal punishment would be unnecessary and even cruel; and personally I should regard its frequent use in the school or in the home as a sign of something seriously wrong in the management of the children. I am only protesting against ruling out on fallacious grounds any use of corporal punishment with *any* type of child at *any* age.

VACATION SCHOOLS

The Council regrets that war circumstances made it impossible to proceed with the Summer Schools arranged for Durham and London, but it is hoped that similar Schools will be held next year.

SUBSCRIPTIONS

Subscribers are reminded that the present issue completes Volume II of the HEALTH EDUCATION JOURNAL and that subscriptions to Volume III which commences with the January 1945 number are now due. A subscription and banker's order form will be found in the present issue.

BINDING

Arrangements can also be made for binding Volume II at an inclusive cost of 5s. 6d. Enquiries should be addressed to the Editor, *Health Education Journal*, Central Council for Health Education, Tavistock House, Tavistock Square, London, W.C.1.

TOTAL WAR ON TUBERCULOSIS

By Harley Williams, M.D.

The brilliant daughter of a Yorkshire clergyman passed away at the age of thirty-nine, just as she was achieving renown and readers for a book that was to live a hundred years. Two younger sisters, each of them writers of genius, had died around the age of thirty, and also a brother who had no gifts, except for dissipation. Such is the family history of the famous Brontës, Charlotte, Emily, Anne and Patrick, their lives cut off prematurely in the first part of Queen Victoria's reign. They perished of pulmonary tuberculosis, a disease we now know to be preventable.

Such tragic families used to be common, except for the talent. Of course, family wastage through tuberculosis occurred at all intellectual levels, and there is no reason to believe that tuberculosis inspired the creation of *Jane Eyre* and *Wuthering Heights*. Tombstones and parish registers tell their tale of several children in a family cut off by 'a decline,' and it was an article of faith that the disease ran in the families and was hereditary, passed on before birth. From the mixture of family history, social record, fatalism and superstition which gathered around families like the Brontës, a dark picture became part of popular opinion and folk lore. This legend hampers progress even to-day, and places obstacles in the path of the doctor and patient. Tuberculosis has changed both in its form and severity. But public reactions to it still haunt the period of Charlotte and Emily Brontë. The first step in a rational scheme of preventing tuberculosis is the conquest of fear; both the communal fear that stultifies preventive measures, and the personal anxiety that inhibits the early recognition of the disease.

An Infective Disease

The hereditary factor plays a small part in the origin of tuberculosis, which is a true infective disease mainly caused through prolonged contact with a tuberculous patient. For the present article, we can omit the details of bovine infection through milk, which is a secondary problem. When the patient coughs, the moist droplets of his breath may contain *Tubercle Bacilli.* His spit contains *Tubercle Bacilli.* His handkerchief and pillow are contaminated by them, and, of course, the chances of contact between the germs and a healthy person are much greater in small, overcrowded rooms, where there is dirt, damp and no sunshine. Actual contact between person and person is more important than infection through inanimate objects. Parents infect children, nurses infect their charges, adolescents infect one another. Weeks, months, years are necessary for the seed to develop inside a new person. Tuberculosis is not, like diphtheria, an infection that matures

rapidly and expresses itself as an acute illness. Tuberculosis is slow, chronic, fatiguing.

Once sown, the germ of tuberculosis may lie low in the human body for years, revealing no obvious signs of its presence, and causing no symptoms. It constitutes the hidden threat of a danger which varies at different ages, and with the ebb and flow of bodily health. The risk of this latent infection suddenly overwhelming the resistance of the body is very great in infancy. But in childhood, the hazard is not so threatening. The greatest danger period is post-adolescence and early adult life: roughly speaking between the ages of fifteen and thirty. It is at this age that the latent forms of pulmonary tuberculosis referred to below are especially frequent.

Between fifteen and twenty-five, 50 per cent of the total death rate from all causes is due to pulmonary tuberculosis, a special incidence far surpassing even that of cancer at a later period of life.

It is not difficult to understand why these critical years (15–30) should be so specially threatened by a disease which can also occur in infants and grandfathers. The 'teen' years witness leaving school, starting work, sexual development. They are the periods of growing self-confidence, energy and desire to experiment: the years when the boy and girl realise their powers, and have not yet realised their limitations. Overstrain, the great ally which devitalises body and spirit, is common at this period. Tuberculosis picks out some of the aristocracy of body and spirit.

Now overstrain is a vague term which has a big range. Excessive devotion to athletics (e.g. record breaking), professional sport, examination fever, anxiety over college degrees, and nervous strain following emotional setbacks: all of these causes can set up a strain which favours tuberculosis. We must not dismiss contemptuously the case of the maiden who falls into a decline because she is crossed in love. Tuberculosis has been called a 'disease of discouragement.' I well remember the case of a County Medical Officer of Health of outstanding personality and originality. He had fought a winning battle with tuberculosis for over twenty years, and except for an occasional cough, lived a normal existence, except that he did work enough for two men. Then in one week he suffered three serious setbacks, two in connection with his work, and one private. In this very depressed and anxious state, his old enemy seized the chance, and a week later my friend was overcome by fatal pulmonary tuberculosis. In a man of sanguine and sensitive treatment, this sequence of severe mental disappointment leading to breakdown was more than coincidence.

Nutrition plays a big part in our natural resistance, and many tuberculous persons suffer from personal and morbid dislikes (such as an abhorrence of fat or green vegetables), which when continued over a long period drains the system of essential food-factors. In this country, a recent enquiry by the N.A.P.T. showed that 31 per cent of tuberculous patients fail to reach

a diet according to the League of Nations standard. Improved general nutrition should have a big effect on the tuberculosis death rate, and contrariwise, the semi-starvation in Poland and Norway to-day are likely to be revealed for many years through high tuberculosis rates.

The disease we call pulmonary tuberculosis, then, is the result of infection plus a comparative failure of resistance. The relative importance of these two factors—infection and failure of resistance—varies very greatly. Children brought up by an infected mother absorb large numbers of germs in a short time, and in infancy their natural resistance is small. On the other hand, doctors and nurses who work among tuberculous patients (in hospitals and dispensaries) do not have more disease than the average, though they must inhale many tubercle germs. A Highland policeman of magnificent physique has a poorer resistance and a worse prospect of cure than a feeble scarecrow of a man brought up in the slums of Glasgow.

The modern tendency in tuberculosis control is to develop two preventive procedures called 'case-finding' and 'readjustment.'

Case Finding

The great reservoirs of new infection are the adult sufferers from chronic pulmonary tuberculosis, often middle-aged or old. They have made terms—a kind of armistice or deadlock—with their tuberculosis and but for a chronic cough, masquerading under various alibis (e.g. chronic bronchitis), and spit containing, unknown to anyone, *Tubercle Bacilli*, these people look like healthy individuals.

On the other end of the scale the disease sometimes takes a baffling form, mostly in adolescents and young adults. There are no symptoms, no signs, no illness—yet the tuberculous condition has a strong hold. Only an X-ray photograph of the lung can discover such latent cases.

Mass radiography, a war-time discovery, is a cheap and effective way of picking them out. Thousands of presumably healthy people can be examined in a factory, office or school. In this country, out of every thousand examined, about 70 or 80 will be under suspicion, and need further examinations to exclude the possibility of disease. The majority of such 70 or 80 will not feel ill and probably will have no cough.

A cautionary word must be spoken about the X-ray machine. It is, of course, not an infallible means of discovering disease, any more than a giant telescope is an infallible device for finding the rings on Saturn. There must be a careful, experienced and clear-sighted eye, both at the telescope and facing the X-ray film. But patients believe in the machine, and for psychological reasons will come to the clinic for an X-ray examination, when they will not come for a clinical overhaul. We who do not share that simple faith can be thankful that X-ray machines give us a magnet to bring patients to the doctor.

Mass Radiography is a method of giving a bird's eye inspection to a thousand people, and a closer near-view scrutiny to the 70 or 80 who are considered suspicious. The results of the first year of mass radiography show that the public like it this way. They ask for 'X-ray overhaul' because (such is the constant suggestion of modern life), they believe in the miracle of a machine more than the human brain.

Case-finding, then, by modern methods means that more infective patients will be discovered and prevented from sowing the seed among younger susceptibles.

Should We Isolate the Consumptive?

How far can we insist that a patient who is a risk to others on account of pulmonary tuberculosis shall stay in hospital—against his will? Where a patient is certified to be dangerous to others living in the same house, there is legal power by which the doctor can apply to the Court for a warrant compelling the patient to remain in hospital for three months. At the end of that period a further warrant can be obtained. In theory, therefore, tuberculous patients can be isolated by legal sanctions, but in practice this is a dead letter. In this country there is a healthy dislike of compulsion. If it comes to be thought that going to a tuberculosis dispensary may render one liable to be spirited away into isolation by what the ordinary man regards as *Gestapo* methods, harm will be done. Effective isolation can be achieved through hygiene and habit, and the magistrate and policeman should have no part in this branch of preventive medicine.

Once a tuberculous patient has been diagnosed and brought under care, the danger of spreading germs is likely to be minimised through the advice of the doctor, the visits of the nurse, and the disinfection of domestic articles. The known and ascertained case of tuberculosis is less dangerous than the unsuspected case.

Readjustment

A patient with tuberculosis needs a long period of rehabilitation or readjustment. We ought to regard tuberculosis as a danger signal of overstress in the individual's life. This disease is not merely a consequence of germ penetration; it is evidence of maladjustment in the physical and emotional make-up; and the cure of the bodily disease must include mental revaluation.

One of the commonest causes of soul malaise is for a person to feel unwanted, or unfitted in the work he has chosen or is obliged to do to make his living. He wakes up to new possibilities and realises it is too late. Or he thinks it is too late. Whereas successful lives show that it is seldom too late. A wonderful process of mental readjustment can take place at almost any age, and no person under thirty need feel that his path through life is irreversible.

Tuberculosis demands rest and seclusion when the patient in a sanatorium will be cut off from his work and his family, giving him the first leisure he has ever enjoyed since leaving school. But many people find rest and reflection quite insupportable: thinking about themselves, being alone, are states of being they have shunned all their lives. These are the people who have never come face to face with themselves, or been free in the choice of life's opportunities.

Retraining for a fuller life begins by reconditioning the individual, and educational courses in sanatoria and hospitals can do as much for the patient's future benefit as can medical treatment. We should be able to help the man or woman who fits into no regular pattern, the man who left school early; the girl who has daydreams, but no hobbies. Progress has been made in our sanatoria in teaching children, especially in orthopaedic wards where they are under treatment for long periods. But little has been done for adults. Here is an opening for education departments of the local authority to guide individual patients, to provide teachers and classes, both occasional and permanent, because a sanatorium population changes, and individual patients, however zealous, suffer relapse and have to interrupt their courses.

To see men fiddling with basket-work or sewing leather purses is not an inspiring sight: they know that this is just a device to keep them away from the more congenial diversions of billiards and betting. But young intelligent men and women, of the type seen in our Services to-day, with mental interest and lively curiosity, are fit for ampler incentives than mere 'diversional' therapy. We need a series of sanatorium colleges or continuation schools. In Switzerland there is a sanatorium university.

A new chapter in rehabilitation was opened in 1943, by the payment of *financial allowances* to tuberculous patients through the local authorities. These are not doles, or pensions, they are grants in aid of treatment, to enable the consumptive person to give up work and go to hospital, knowing that wages will be made up, and that he will not need to break up his home and realise personal capital in the shape of insurance policies, furniture, etc. These allowances are paid by the authorities (180 in number throughout England), which have wide discretion about details. The standard allowance is 63s. per week for a man with a wife and two children over sixteen, subject to a deduction of 10s. while he is resident in hospital. These payments begin the moment the tuberculosis officer advises him to give up work.

This scheme has two generally admitted defects. First, its intention is limited to patients who have a prospect of returning to work after their treatment. The second, but minor defect is that only *lung* cases come under the scheme at present. These drawbacks are due to the fact that Regulations were passed by Parliament under its war-time procedure. Nevertheless, these allowances are an enormous social advance in the treatment of tuberculosis. In 70 per cent of tuberculous patients otherwise unable to purchase

enough food to attain the League of Nations standard, the allowances enable the patient's diet to reach that standard.

Tuberculosis—a Social Index

The amount of tuberculosis in a community is as sensitive to the state of environmental well-being and the efficiency of the health services as litmus paper is to the presence of acid. Tuberculosis is more of a social disease than any other, and its control can be achieved by the use of knowledge we possess already. The catchy title, *Total War on Tuberculosis*, expresses the truth that we can conquer this formidable infection, which has been man's familiar enemy all down historical time, only by the combined use of a great variety of resources.

Clinics will not eradicate the disease where housing is inadequate. New housing programmes alone are not enough to prevent fresh cases unless diet is adequate and varied. Pasteurisation of milk will prove an illusion, unless simultaneously the disease is cleared from dairy herds. Each of these separate methods is good in itself, but alone will fail. By the use of all these weapons together—clinics, better diet, improved housing and wholesome milk—the death rate from tuberculosis could in time be brought down to zero.

In deference to the title and policy of this Journal, and since Health Education is at the root of all these reforms, I state some immediate practical objectives in the war on tuberculosis.

1. An additional 5,000 beds for treatment of tuberculous cases.
2. Early resumption of housing standard permitting every consumptive to have a room to himself.
3. War-time nutritional ideals preserved and extended.
4. Renewal of administrative campaign for eradicating tuberculosis from dairy herds, together with pasteurisation.
5. Development of mass radiography, especially among young adults.

BIOGRAPHICAL NOTES

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MARRIAGE GUIDANCE

By David R. Mace, M.A., B.Sc., Ph.D.

"A queer country, this," sighed a distracted wife who had come to consult me about her troubles. "They puts up fine buildings for yer to go to if yer wants to *end* yer marriage; but there's nowhere to go if yer wants to *mend* it!"

No doubt that is a sweeping statement. Nevertheless it contains considerably more than a grain of truth. We have vast and well-organised medical, personal and social services, designed to cover almost every aspect of human need. Yet in those services there has been up to now a yawning gap. There has been nowhere for people to go with their marriage problems.

Marital Disharmony

To say that marital disharmony is a private matter, which husband and wife should settle between themselves, is to display lamentable ignorance. The fact is that, in any marriage which is going wrong, a stage may be reached beyond which the couple alone are wholly incapable of saving the situation. The strain in the relationship has become such that every attempt they make to resolve it merely aggravates the conflict and increases the tension. At that point outside help *must* be sought, and it is natural and instinctive to seek it. The trouble is that almost invariably the husband or wife turns for assistance to well-meaning but incompetent relatives and friends. These amateurs do their best; but the biassed position which they occupy, together with their inexperience of such delicate work, results in attempts at intervention which in most instances prove wholly disastrous. Even if they manage to 'patch things up' for a while, the trouble generally breaks out again later, because the fundamental emotional conflicts have remained unsolved behind a façade of apparent reconciliation.

The damage done to marriages by this inexperienced handling is beyond all reckoning. It is not merely that the real problems are not diagnosed and solved. It is that precious time is wasted, so that ultimate solution becomes more and more difficult. In the early stages of conflict, husband and wife are reluctant to see their relationship break up, and eagerly strive towards reconciliation. Later on, however, the desire for reconciliation gives place to resentment and antagonism, in one of the partners or in both. The hour of opportunity runs out all too soon; and if it is wasted in trying to apply improvised remedies, the expert may find that, by the time the condition comes into his hands, the capacity for co-operation has worn out and he is powerless to apply his superior knowledge and skill.

Expert Help Needed

The answer to this situation lies first in the widespread provision of expert guidance for married couples in difficulty; and second in the education of the public to avail themselves of such guidance in the early stages of marital disharmony.

There should be no need to emphasise the fact that marriage guidance is a delicate task. It is not easy for husband and wife to acknowledge that they have failed to manage their relationship satisfactorily. To do so involves some sense of humiliation. It means also the surrender of that essential privacy which is healthy and right so long as a marriage is going well. Everything possible must be done, therefore, to put skilled help in the way of such people in an atmosphere which is sympathetic and confidential.

For well over a year, an experiment has been made by the Marriage Guidance Council* to discover how this situation can best be met. In London, a Marriage Guidance Centre has been in operation, to which people have been invited to bring their personal difficulties. At the time of writing, something like seven hundred cases have been dealt with. There is no space here to describe this work in detail. Suffice it to say that the project has been so successful that the Centre has passed beyond the experimental stage, and may be said to have initiated a new type of social service whose future is assured. Whatever final form it may ultimately take, marriage guidance has come to stay. The widespread need which has been revealed by our offer of advice and help, and the keen interest which has been awakened by our pioneering enterprise, have convinced us that we are on the right lines.

Prevention Better than Cure

Yet we are far from content with our efforts to deal with marital disharmony. Our experience brings us relentlessly again and again to the old adage that prevention is better than cure. So many of the tangled problems with which we are called upon to grapple need never have arisen. They are the consequence of ignorance, or of that misinformation which is worse than ignorance. The seeds of disaster were sown years before. While we cannot ignore the necessity for remedial treatment, the clue to a lasting solution lies further back, in the inculcation of a right attitude before marriage is embarked upon at all. We therefore see our work to be linked inextricably with that of health education.

The immediate objective as we see it is to awaken the public to the vital importance of preparation for marriage. In its full significance, this includes the sex education of children, the moral and spiritual direction of adolescents, and the specific preparation for marriage of individual couples. The first two of these tasks are being faced with enlightened and resolute zeal by several

* 78 Duke Street, Grosvenor Square, London, W.1.

organisations, and we are content to leave them to those who are well able to deal with them. Our attention is more directly concentrated upon the specific preparation of those who stand on the threshold of marriage.

Inadequate Preparedness

It is beyond question that, even in these days of apparent enlightenment, large numbers of young people embark upon marriage in a state of very inadequate preparedness for its difficult and complex adjustments. All our experience goes to prove that a considerable amount of the misery and frustration which eventuates from unhappy homes could be obviated, by the provision of a simple course of instruction and guidance offered to those about to marry. Such a course would offer sound knowledge of sexual technique and emotional adjustment, provided through the reading of selected books supplemented by consultation with a friendly and skilled adviser. It would offer where necessary simple psychological guidance to those who required it, so that they might be freed from inhibitions and repressions which might hinder the mutual adaptation which the early years of marriage require. It would also make available the necessary facilities for pre-marital medical examination, the value of which has been frequently illustrated in the experience our Centre has already gained.

An Illogical Attitude

We have been amply rewarded, in what we have done to prepare couples for marriage, by their exuberant and sometimes even embarrassing gratitude. Yet we are far from satisfied; for while comparatively few seek our help before marriage, many come to us in dire distress when their relationship has reached the stage of chronic breakdown, which could have been so easily prevented, but is so hard to cure. We are conscious of a resistance, a stubborn and irrational prejudice, in the public mind against the idea of marriage preparation. In other spheres, to embark upon any major undertaking without acquiring the best possible equipment to secure its success is rightly regarded as culpable irresponsibility. Yet, with strange illogicality, marriage is made the sole exception to this otherwise admirable rule. The removal of this fallacious idea is necessary and urgent.

I have so far discussed marriage guidance as a means of increasing individual health and happiness. In conclusion, something must be said concerning the immense consequences which such a service, widely and efficiently organised, may have upon the well-being of society as a whole.

Social Effects of Broken Marriages

It would be difficult to overestimate the extent to which marital disharmony is wrecking havoc at all points of our common life. Failure to achieve success in marriage means domestic discord. Conflict within the

home makes for frustrated individuals, who seek to compensate for their conflicts by anti-social behaviour. This leads to delinquency, crime and anarchy. Moreover, a home where real co-operation has broken down generally spells bad management and disorganisation; which may call for intervention on the part of social services and relief organisations. An unhappy home is therefore a malignant growth within the life of the community, and its far-reaching results may make heavy demands upon public resources.

It is perhaps not unreasonable to estimate that the majority of our social ills arise, in the last analysis, as a result of failure to achieve true harmony in family life. To get at the tap root of these evils, therefore, the obvious course is to do everything possible to promote successful marriage and parenthood. Yet, in point of fact, this is the one thing which we have *not* done! We have built up and organised vast and complex social services to provide remedies for the *effects* of marital disharmony. The conviction of the Marriage Guidance Council is that it would be much easier, and much more logical, to attack the disease at its source, to treat the underlying condition instead of merely alleviating the resulting symptoms.

The Security of Family Life

The promotion of successful marriage and parenthood is a large undertaking. It can only be done effectively by the thorough preparation of all our young people for the task of home-making; by the provision of properly qualified help for those confronted with marriage problems; and by the establishment of a social and economic system which removes from family life some of the crippling handicaps under which it suffers at present. We submit that these tasks are second to none in importance in the programme of post-war reconstruction. A nation which won a world war, and then failed to recover the stability and security of its family life, would be no more profited than a man who gained the whole world and lost his own soul.

CHAIRS IN CHILD HEALTH

It is with the utmost gratification that we read of the steps now being taken by our Universities towards the investigation of the problems of 'child health.' For the past three years the Nuffield Provincial Hospital Trust has made a contribution to aid the University of Durham in the maintenance of a Chair of Child Health at King's College, Newcastle; and now in the space of a week, follows the announcement of the establishment of a Department of Child Health in the University of Liverpool and of the munificent grant of £10,000 a year for ten years, made by the Nuffield Foundation to enable the University of London to create a post-graduate Institute of Child Health. The warmest congratulations are due to all concerned.

THE FILM IN EDUCATION

By Mary Field, M.A.

In the past five years of the war, we have almost forgotten what an educational film can do. We have been overwhelmed with a flood of propaganda films and direct instructional films which have demanded from us a mind entirely passive and receptive. These films have told us how we ought to think and what we ought to admire. Admitting no question, they have laid down for us the food we should eat, when we should eat it, how to use the stirrup pump and the right way to kill slugs on the allotment. "I'm telling you" has been the motto of war-time films and, so well-intentioned are we to the war effort, that we have refrained from ever answering back—"You're telling me . . . ?" Many of us have come wholeheartedly to accept this film dictatorship. Others, less amenable, have steeled themselves to resist the omniscience of the war-time film with the armour of flippancy and scepticism. Few of us remember the real educational film, the film that did not tell us but offered to help us find out, that was so honest that it could defy scepticism, that was so democratic that we could query it and challenge it and still come to terms with it.

Active Participation

It is alarming how firmly this passive attitude towards films is now established. It is implicit in the usual expression used when instructional films are employed for teaching—to 'show' a film. A class is 'shown' a film. The lesson is illustrated by a film 'show.' Notice the implication that the children or students sit still, while something is done to them and for them—the film is projected by someone else, while they just sit. Someone else is employed and enjoying achievement. They remain still—and accept what they are shown and told. But the correct verb in relation to films should be an active one, to 'see' a film. The class 'watch' the film, the group 'observe' the film. It is *they* who should be taking an energetic part; who should be doing the work; who should study, deduce, accept or challenge.

Fault is actually found with films if they do not tell every detail to the audience but, instead, leave its members the pleasure of finding out. A film on life in an Indian desert town was recently severely criticised by a journalist, for not showing, in so many pictures, how people earned their livings in that town. So, next time the film was projected, before a woman's group, the people present were told that they must be able, at the end, to write down at least six ways in which you could earn your living in that town. The most observant woman found thirteen ways; between them, they found about twenty trades and professions. For days, when they met in

the food queues, they would greet each other with, "I've thought of another trade." How they enjoyed that film, how active they were over it! How good an instructional film it was! How lazy was the critical journalist!

The Science Film

The prevalent passive attitude towards instructional films is particularly unfortunate when the films are scientific. For the study of science demands activity on the part of the student, however young the student or elementary the science. The smallest child can grow mustard and cress in a saucer or move a magnet under iron filings. The simplest lesson on acids and alkalis should encourage the class to mix for themselves vinegar and soda to spill out of a bottle over the kitchen sink. So the scientific film and the health film should encourage an active frame of mind.

This is not really a difficult thing to achieve, because children like to be energetic partakers in any film exhibition. Watch the audience coming out of a children's film club and see how it emerges even more lively and stimulated than when it went in. Then compare these children with the average adult audience, crawling out of the pictures, still more or less doped. Somewhere, in adolescence, our attitude to films goes wrong. At some point we become lazy in our cinema-going. Possibly it is the dead hand of good behaviour which makes us ashamed to express our feelings by cheering or booing, by giving advice to the actors or by clapping a beautiful scene or a well-taken shot. Possibly it is the cinema proprietors we have to blame, who have discouraged too violent reactions on the part of audiences for fear the expression of their feelings might lead to ink on the screen or the wrecking of the box-office. Nevertheless, even in the best-regulated cinema, sometimes a film-goer will break into hand-clapping or shout "Look behind you" to the hero. In all of us there still lurks that primitive and healthy desire to join in what is happening on the screen.

It is this desire for action which should be exploited to the full in any instructional film, but above all in the scientific film and in the health film. Never should the scientific film do for a student what he can do for himself. But it should help him in his activities. Ciné-micrography helps the beginner to know and recognise what he is looking for through the microscope. A biological film, which is a life history, acts as an introduction to personal study of an organism, or can be a useful piece of recapitulation. The film camera can also become an unblinking eye and record movements that take months to perform and which no human eye could watch; or, by slow-motion, the camera can slow down movements too quick for the most active observer to see.

When it comes to experiments the value of the film becomes more restricted. It is safe, as a general rule, to say that all experiments should be performed by the students themselves or, in the case of very complicated

apparatus, before them. Then we come to exceptions to this rule, yet the film should always be regarded as a stop gap. Sometimes the necessary apparatus is too costly for it to be available in the laboratory. Sometimes the experiment is so complicated that it would be a waste of time to assemble the apparatus a second time for recapitulation. Sometimes the experiment is frankly beyond the teacher's powers. Then the film record can be used. This rule applies also, in medical schools, to cases where rare or complicated operations can, perhaps, best be observed in detail by means of the film, which, however, only supplements attendance in the operating theatre.

In studying the application of science and medicine to industry, the film can play a very useful part. Again it can never take the place of actual school journeys or personal experience but, when travelling is difficult or absorbs too much time, the film can well take a study group into the works or down a coal mine. And there is one very good thing to be said for this type of film. Everyone who sees it has the best view; for the camera has been right up, even closer to the process than the most pushing observer would dare to go. Indeed, the film is a great aid to the shy and diffident scholar.

Films are useful in scientific study for the recording of research and also for recording the point of view of researchers. This recording will make invaluable material for the history of science in years to come. Newton's estimate of his greatest work would probably have been completely different from ours, could his voice have been recorded in an interview. And already the views of Colonel Crompton on the iniquitous activities of the proprietors of horse-drawn vehicles sound strangely in our ears.

Health Films

The same general principles that apply to the right use of scientific films for teaching, apply also to health films. There are very few educational films about health, only a great spate of propaganda and direct instructional films. Most educational health films would be physiological, an explanation of the working of the bodily machine, from which the learner can deduce how to keep that machine active and running smoothly. It is important that the films should stimulate those who see them to take active measures; audiences can sometimes hardly wait to try the exercises and movements illustrated in good physical education films and the same desire to collaborate should be stimulated by films on feeding, breathing, cleanliness, etc. Health films should provoke to experiment, not to slavish obedience.

And, of course, no films, scientific or health, should be considered apart from other equipment for learning, such as books, still pictures, strip-film projectors, black-boards, and, above all, the spoken word and the friction of mind on mind. The best definition of an educational film is "a piece of equipment in the hands of the teacher," and to this we can add "or the

learner." It should, therefore, be closely correlated with all the other equipment used and should never be framed to give us instruction by itself, but rather should, in conjunction with other things, provide us with the material from which we can find out for ourselves.

Never, never let us sit passively before a health film. Let us rather get down to it, like terriers after rabbits in a burrow, all a-quiver to find out what is hidden below the surface. And so, by using and exercising our minds, we shall make them healthy agents in establishing and maintaining a healthy body.

HEALTH IN SCHOOLS

A memorandum of evidence approved by the Council of the SOCIETY OF MEDICAL OFFICERS OF HEALTH has been submitted to the Interdepartmental Committee on Schools.

The Society of Medical Officers of Health is of opinion that in all schools, whether controlled by public authorities or private bodies or persons, there should be adequate arrangements to maintain a satisfactory standard of hygiene of the buildings and health of the scholars. There should also be continued medical supervision and treatment of the children attending school.

The memorandum contains the following recommendations:—

General Hygiene.—The school should conform with a minimum standard of hygienic requirements regarding such matters as sanitary arrangements, water supply, floor space, ventilation, etc.; having regard to the special use to which the rooms and other parts of the building are being put.

Medical Inspection.—All children on admission to school and from time to time thereafter should be fully medically examined. If at all possible the parents should attend at such an examination and if unable to do so it is suggested that arrangements should be made for the school medical officer to interview them on some other suitable occasion. This is particularly important in the case of boarding schools.

Infectious and Contagious Diseases.—Close supervision of children attending the school should be arranged in order to keep them free from such diseases and to isolate and treat such diseases whenever they occur.

Advice to Teachers.—The medical officer should advise the teachers regarding any children for whom his examination has shown some need of modification of instruction, of games or of physical exercise.

Treatment.—Treatment facilities in the form of 'sick rooms,' etc., must be provided at all residential schools and arrangements for treatment should be made for all defects, whether the child is in a residential or non-residential school. A consulting staff should be available when the school medical officer requires it. In public schools, the dangers and trials of the adolescent period should receive special attention.

The following recommendation is of particular interest to readers of the HEALTH EDUCATION JOURNAL.

Health Instruction.—Suitable health instruction should be given to children appropriate to their age; instruction in sex should be included, and for those leaving school special instruction in venereal disease.

NUTRITION IN THE FAR NORTH

By F. F. Tisdall, M.D., F.R.C.P. (Can. Assoc.), with an Introduction by Sir Patrick Ashley Cooper

INTRODUCTION

On May 2, 1670, King Charles II granted a Charter to "The Governor and Company of Adventurers of England trading into Hudson's Bay." For two hundred and seventy-four years the Company has been trading not only into Hudson's Bay but all over Canada, from the Atlantic to the Pacific, from the United States border to far up into the Arctic Ocean. The Company's activities now extend to many countries of the world.

With all this expansion one of the most important activities remains—the original Fur Trade Department in Canada. This department blends a surprising mixture of the old and the new. Traditional ways of life, travel and trading continue alongside the most modern developments of wireless and aeroplane. Approximately two hundred trading posts are scattered over an area which, measured on the map of Europe, would extend from Portugal to Afghanistan and from Turkey to the North Cape in Norway. With poor means of communication, long periods of isolation are inevitable and the transport and storage of food and supplies present great difficulty.

In the early days, knowledge of hygiene and nutrition was scanty. Where fresh supplies of food were difficult to obtain, sailors, travellers and trappers lived and ate in conditions which undermined even the strongest constitutions. With the demand for fine white flour and refinements in other foods many of the ingredients needful for life in the North disappeared.

Shortly before the war, during one of my inspection trips, I was flying down the Mackenzie River to the Arctic with Mr. Philip Chester, General Manager for Canada. As we visited the trading posts, we realised that with all the improvements which had been made, there was room for a greater understanding of nutrition and the introduction of better diet if the health of our Post Managers and their families was to be maintained at the standard we would desire.

In conjunction with the Canadian Committee, Mr. Chester consulted Dr. F. F. Tisdall, of the Department of Paediatrics, Toronto Hospital for Sick Children, and a noted authority on nutrition. Dr. Tisdall gathered around him a small team of experts, and by answers to carefully prepared questionnaires, etc., and the use of aeroplanes, a large amount of information was compiled, analysed and acted upon. New methods of selection, prepara-

tion, and despatch of food supplies have been adopted. Intensified developments in Arctic horticulture have been applied. Problems of storage are being solved. Much has yet to be learned, much has to be done. Results are difficult to measure accurately, but so far they are gratifying.

The knowledge and experience of Dr. Tisdall and his team have now been made use of by Canadian Government Departments in dealing with the health of the Indian population. Recently Dr. Tisdall, now an officer in the R.C.A.F., visited England, and he and I examined together what he has succeeded in accomplishing for the Company and his plans for the future. He has put on paper a few of the general aspects of science applied to feeding which we discussed.

DR. TISDALL'S LETTER

"Dear Sir Patrick,

"While in London a short time ago we had the opportunity of discussing some of the nutritional problems encountered in the feeding of the Fur Trade personnel of the Hudson's Bay Company and the Indians at these isolated points in the far northern part of Canada. During this discussion I mentioned that the acquisition of our knowledge of nutrition and its importance for the health and efficiency of the nation had far outrun its practical application, and gave you a few examples from our studies of how simple changes in the types of food eaten resulted in a marked improvement in the health of the people studied.

The Problem To-day

"We are not concerned with the obvious deficiency diseases such as rickets, tetany, scurvy, beriberi and pellagra, due to their infrequent occurrence to-day. For instance, in the Hospital for Sick Children in Toronto, which hospital has approximately a hundred thousand attendances a year, we had 154 cases of rickets in 1925. Ten years later we had 4 cases. Children with scurvy number only 6 or 7 a year. Frank pellagra and beriberi are practically unknown. Our problem to-day is not these obvious deficiency diseases, which are the end result of marked deficiency comparable in the tuberculosis problem to a patient dying of tuberculosis, but the minor dietary deficiencies which, carried on over a period of years, definitely affect the health, resistance against disease and the efficiency of the individual.

"At least 34 food substances are necessary for life. They are 10 amino-acids, which we obtain from protein—our best sources of protein being meat, fish, fowl, milk, eggs, vegetable protein such as obtained in peas and beans, and cereal protein such as obtained in oats and wheat, oats and rice, vegetables such as potatoes, and sugars such as ordinary cane and beet sugar; fat; 13 minerals, and 9 vitamins. It is well recognised that if an indi-

vidual eats a diet lacking in iron he will in time become anaemic, and everyone knows that a pale, anaemic person does not represent the acme of health or efficiency. The same is true of all the food elements mentioned above. It is only recently that we are beginning to recognise that a number of the diseases of middle life and old age—the causes of which were not known—are the result of heavy dietary deficiencies over a period of years.

Vitamins and Eye Troubles

"One example of how a lack of one food substance can affect the efficiency of the individual is illustrated by recent work on riboflavin, or vitamin B2, in Canada. It is known that a lack of riboflavin results in the growth of tiny blood vessels into the cornea or clear part of the eye. It is also known that such symptoms as eye fatigue, watering of the eyes, burning of the eyes, sandy sensation under the eyelids, headache and dizziness may all be caused by a lack of riboflavin. There is also evidence that light destroys riboflavin, and that individuals in bright light require more of this food element than those who are not. In Canada, with its bright, clear sunny days in the summer and its cold, clear days in the winter with the ground covered with snow which more than doubles the intensity of the light, it would be expected that the riboflavin requirements would be much greater than in England. Such apparently is the case, judged from the English reports on this eye condition. Examination of approximately two hundred young Canadians whose time was largely spent outdoors and who were exposed to bright light, showed that almost 50 per cent had extension of blood vessels into the cornea of the eye, and careful enquiry indicated that of these men two-thirds suffered from two or more of the following symptoms—tiredness of the eyes, sandy sensation under the eyelids, dizziness, headaches and reading intolerance. After riboflavin had been given to a number of these men over a period of two months, about 95 per cent showed either a clearing or improvement of the eye symptoms, while the administration to another group of these men of capsules similar in appearance but containing no riboflavin resulted in an improvement of the symptoms in only 10 per cent. At the same time a decrease in the blood vessels in the clear part of the eyes was noted in a large number of the subjects receiving riboflavin, while no decrease was noted in the subjects receiving the plain capsules.

"The best food sources of riboflavin are milk, cheese, eggs, liver, and there is a rumour that English beer is quite rich in this food substance. It may be that, combined with the relatively low light intensity in England, the high riboflavin content of English beer accounts for the comparatively small number of cases of eye involvement due to riboflavin deficiency.

Diet and the Gums

"Another example of our work in Canada which is even more applicable

to the population of Great Britain than to the population of Canada is the effect of diet on infection of the gums. In its advanced chronic state this is referred to as 'pyorrhea' and in its acute stage—as seen frequently in the last war and somewhat less frequently in this war—called 'trench mouth.' Our studies here, conducted jointly by the dental and medical professions, show that infection of the gums is fairly frequent, the frequency increasing with the age of the groups studied. From personal observations in England it was found that the condition is more than three times as frequent in England as in Canada; in fact, the frequency was so great amongst the young men studied that it might well be regarded as a major public health problem.

"Inflammation of the gums, or gingivitis, is characterised in its early stages by a redness or swelling of the part of the gum which extends up between each tooth, known as the interdental papilla, and also along the margin of the gum in contact with the tooth. This redness and swelling gradually becomes more marked and extends down or up over the whole of the gum tissue. As the infection proceeds the gum tissues are destroyed, first the interdental papillae and then the margin of the gum tissue, so that more and more of the tooth is exposed. If these gum tissues were treated so that the infection was largely removed and the individuals then placed on diets that were low in vitamin C and others on diets that were high in vitamin C, it was found that the condition of the gums deteriorated in the vast majority of the individuals on the low vitamin C diet, while deterioration of the gums was a rarity in those individuals who received a high vitamin C diet. It is not unreasonable therefore to conclude that the low vitamin C diet so lowered the resistance of the gum tissue that infection could readily enter.

"Many vegetables, such as potatoes, cabbage, brussels sprouts, cauliflower and yellow turnips are excellent sources of vitamin C. Care must be taken, however, that in the cooking they are kept for a minimum length of time in a minimum amount of water consistent with good palatability, otherwise a large proportion of the vitamin may be lost in the discarded cooking water or destroyed in the cooking process. For example, if cabbage is cooked properly it will retain 85 per cent of its vitamin C, when cooked improperly it may lose 90 or even 100 per cent of its vitamin C. Salads made of green vegetables are usually good sources of vitamin C, and of course, when they can be obtained, oranges and other citrus fruits are loaded with this vitamin.

A New Outlook in Pregnancy

"The third example of how a diet that is not adequate will affect the health and efficiency of the individual is the study conducted in Toronto on pregnant women. Women attending the pre-natal clinic at the Toronto General Hospital were asked to keep a record of exactly what they ate for a period of one week. This record was then studied by the dietetic staff of

the hospital and those who were on a poor diet were divided into two groups. To one group—through the generosity of a Toronto business-man—was given an amount of food to furnish each woman each day one orange, one egg, one and a half pints of milk, one ounce of cheese, four and a half ounces of canned tomatoes, a little less than an ounce of wheat germ and some vitamin D. To the other group no additional food was given. Both groups were then carefully observed for the remaining five months of their pregnancy and during labour and convalescence. The obstetricians looking after these women had no knowledge as to which group they were in, and it was only after the observations were completed that they were tabulated. The results were most striking. The number of complications during the prenatal period, during labour and during convalescence were approximately five times as great in the poorly fed mothers as in the properly fed mothers. The duration of labour was definitely shorter in the well-fed mothers. The fairy story of the whole study, however, was the fact that there were fourteen babies lost—and in every single instance these babies came from the mothers who were poorly nourished. The poorly nourished mothers were not as efficient, were not as healthy as the properly fed mothers.

War-time Difficulties

"It is realised that at the present time in Great Britain there are many food restrictions due to shortage of shipping space and the demands of the armed services. Before the war three million tons of shipping per year were devoted to bringing 'water' into Great Britain. This naturally cannot be done to-day; hence the lack of fresh fruit, fresh eggs and other commodities with a high water content. However, the remarkably fine work of the Ministry of Food in supplying the people of Great Britain with the foods essential for good nutrition—although these may result in a somewhat dull and monotonous diet—has the admiration of many scientific bodies both in the United States and Canada.

"There is probably no group of people who at first glance present a more difficult nutrition problem than the Fur Trade personnel of the Hudson's Bay Company. A large percentage of these people are at isolated spots in the northern part of Canada, where their food supplies are delivered at very infrequent intervals, in many instances only one a year. It is true that through hunting and fishing a certain amount of food can be obtained locally, and in certain places even in the far north vegetables can be grown. However, these people depend largely on food which is sent in to them. Due to the far-sighted policy of the Hudson's Bay Company, the food that is sent in is so chosen that it not only meets the food tastes of the people but ensures them food adequate for optimum health and efficiency. Surveys show that to-day only very exceptional groups of people living in our Canadian cities are as well fed from a nutritional standpoint as these Northern pioneers."

BUILDINGS MUST BREATHE

By T. Bedford, D.Sc., Ph.D., M.I.Min.E.

Fresh air promotes health. There can be no question that an open-air life is more conducive to health and vigour than an indoor existence. That farming is a healthy occupation is clearly shown by mortality statistics. Those of us who must live a mainly indoor life should take what exercise we can in the fresh air, and do our best to secure that our dwellings and workplaces are properly ventilated. A century ago a great pioneer of ventilation, Dr. D. B. Reid, wrote that, after mental anxiety and defective nutrition, probably no other cause had in modern times inflicted so great an amount of evil on mankind as defective ventilation. There is much truth in that statement.

The Value of Ventilation

What is good ventilation? Satisfactory ventilation means something more than merely allowing some air, however small in amount, to leak into a room. Yet it does not mean that we should allow the fresh air fiend to blow us out of house and home, or that we should tolerate fierce draughts.

To begin with, ventilation must be enough to provide an atmosphere that can be breathed without causing ill-effects. The oxygen concentration must be high enough to maintain full vigour, and the carbon dioxide must not be sufficient to produce adverse effects. For many years it was believed and taught that the stuffiness and other unpleasant symptoms which arise in crowded and ill-ventilated rooms were due to an excess of carbon dioxide in the air. That hypothesis has been exploded. A room is indeed badly ventilated if the concentration of carbon dioxide reaches one-half of 1 per cent. Research has shown that carbon dioxide exerts no noticeable effect until its concentration reaches two and a half or three per cent, and at such concentrations it merely causes some increase in the rate and depth of breathing. In no ordinary building is the oxygen concentration ever likely to fall so low as to have any effect on physiological reactions.

It has been shown instead that the discomfort felt in crowded apartments arises primarily from overheating, excessive humidity and stagnation of the air, while a further factor is the presence of the typical 'crowd smell' due to the close congregation of many people. The animal body is constantly giving off heat and moisture, and if a room is crowded and inadequately ventilated the temperature and humidity will reach unpleasantly high levels.

Ventilation and Temperature

Our feelings of warmth are dependent on four external factors: the tem-

perature, humidity and rate of movement of the air, and the radiation from the walls and other surroundings. An increase in the humidity of the air renders the evaporation of perspiration more difficult, and thus makes the atmosphere seem warmer. A stagnant atmosphere feels warmer than one in which the air is moving briskly. Ventilation is much concerned with the maintenance of suitable conditions of warmth, and is thus closely related to warming.

In living rooms and workrooms a comfortable degree of warmth should be maintained, but overheating should be avoided. A warm atmosphere, especially if it is stagnant, is enervating and gives rise to feelings of stuffiness and oppression. Cool, dry, moving air, on the other hand, is invigorating; and for that reason we should generally keep our rooms as cool as is compatible with comfort.

In warm weather especially, air movement is of great importance. Out of doors on most days of the British summer, we are braced by the changing play of the wind; and indoors, too, air movement is found refreshing. Hence the need for throwing windows wide open in warm weather. In a cool room air movement matters less. Currents of air which at higher temperatures would be welcome and refreshing, become unpleasant draughts when the air is cool. Some air movement is still desirable even when a room is not over warm, but chilling draughts should be avoided.

Infection and Body Odours

Another important reason for ensuring liberal ventilation is that a good air supply helps to reduce the risk of airborne infection. Many respiratory diseases are spread by organisms which are ejected during coughing and sneezing. Infected droplets thus discharged may remain floating in the air for considerable periods, and thus be a source of infection to others. As the fresh air supply to a room is increased, the numbers of organisms will be diminished and the risk of infection thus reduced. For the prevention of infection, the more copious the ventilation the better.

In winter it is usually necessary to restrict ventilation, so as to conserve heat and maintain a reasonable standard of warmth. But even in cold weather the ventilation should be sufficient to remove body odours. This is desirable on aesthetic grounds and for physiological reasons. Experiments have shown that exposure to these odours reduces the appetite for food. Personal hygiene is all-important in determining the amount of odoriferous matter given off by the body. The amount of fresh air required to keep body odours down to an imperceptible level is greatly influenced by the frequency with which baths are taken and clothing changed. It is often urged that if ozone is liberated into the air of buildings the fresh air supply can be reduced and considerable economy of heating thereby effected. Ozone is a deodorant and a germicide. Unfortunately, ozone, even in extremely low concentrations,

is a powerful irritant, and it must be used circumspectly. In concentrations which are safe for prolonged exposure, it cannot kill germs discharged from the body in coughing or sneezing. In tolerable concentrations it can mask body odours, but only when the smell of ozone is perceptible to most people. There is only a narrow margin between the concentration of ozone which is perceptible to the sense of smell and the maximum safe concentration, and as there does not yet appear to be any satisfactory method of controlling the concentration of ozone accurately, it is undesirable that it should be used in ventilation.

Ventilation in the Home

How should our homes be ventilated? In the ordinary British home the open fireplace and its flue make a valuable ventilator. Provided there is some means (e.g. an air grating or a slightly open window, or even crevices around the door frame) by which fresh air can enter, a room in which an open fire is burning is likely to be well ventilated. The heated air in the chimney flue is lighter than the cool air outside and thus rises by virtue of its buoyancy. Further, the wind blowing across the chimney top exerts a suction action and thus aids the passage of air up the flue.

Even when there is no fire alight, the suction action of the wind generally draws enough air up the flue to keep the room reasonably well aired. For this reason, when fireplaces in bedrooms are not used for heating they should not be blocked up, but allowed to function as ventilators. If the chimney throat is reduced in size, the ventilating action of the flue is reduced roughly in proportion to the reduction in the size of the opening. Thus, if a gas or electric fire is fitted into the fireplace with a neat, flush-fitting surround, the elegant appearance is bought at the cost of reduced ventilation.

Flueless rooms are to be found in many dwellings. In these, and especially those in modern buidings with close-fitting doors and windows, the ventilation rate is likely to be very small when windows and doors are closed. Even when such rooms are provided with air-gratings to the external atmosphere, the ventilation tends to be inadequate. The usual air-grating of the metal lattice type generally has an area of only a very few square inches available for the passage of air, and an opening of such size is not a very effective ventilator. A window open to the extent of even half an inch would be more effective.

By the judicious opening of windows almost any desired ventilation rate can be obtained. In warm weather full use should be made of windows, and even in winter they should not be tightly closed. Often the windows of bedrooms are open by day and closed at night. They should be kept open always. On a cold night it may be very comforting to undress in a warmed bedroom, but it is more refreshing to sleep in a cool room than in a warm one.

HEALTH IN ETHIOPIA

By James Milne

By no means the least of the many problems which faced the new Ethiopian Government when it resumed control of the country in 1941 was the provision and maintenance of medical and public health services. The Italians had set up a fairly extensive organisation of hospitals and public health departments in the large towns, and numerous dispensaries and clinics in the provinces and country districts. These employed a large number of doctors and other skilled workers who, on the collapse of the Italian regime, found themselves interned in Kenya and elsewhere. The result was that the medical and public health services collapsed, save where a nucleus of Italian personnel was retained to keep the hospitals open, as in places like Addis Ababa, or where the British Military Mission to Ethiopia took over hospitals for the treatment of the sick of the Ethiopian army. In the rest of the country the clinics and hospitals closed down or were left in the hands of native dressers, who had been trained by the Italians, or had picked up a little medical knowledge in Kenya or Tanganyika, where many Ethiopians had fled during the occupation.

It was no small task for Haile Selassie and his Ministers to find money and personnel to replace the Italian organisation. The Emperor, however, was alive to the situation, and soon took steps to remedy the position. A senior member of the Colonial Medical Service was seconded by the British Government to become Director-General of Medical Services. The British Military Mission became responsible for the health of the army. The British Red Cross Society took over the Haile Selassie Hospital in Addis Ababa, providing doctors and nurses. In response to an invitation from the Emperor, the Friends' Ambulance Unit sent out two doctors and forty trained hospital workers. Six other doctors have since been sent out by the same body. In addition there are several medical missionaries and hospital sisters, representing various nationalities and missionary societies working in mission hospitals and country dispensaries. Despite the help that was immediately forthcoming, the need is still primarily for finance and personnel. Addis Ababa, Diredawa, Harar and Dessie have all good hospitals, but at present, although there is no lack of patients, they are unable to work at full capacity. Many of the smaller clinics and hospitals in the country districts are being kept open by members of the Friends' Ambulance Unit, some with and some without the help of a doctor. The public health departments of Addis Ababa, Diredawa and Harar are all organised and controlled by members of the F.A.U. It will be seen from the above that a large part of the health services of the country is provided by voluntary societies.

The Diseases of Ethiopia

The endemic diseases of the country are those prevalent in most tropical countries. In the plains malaria, relapsing fever, yaws, elephantiasis, leprosy, tropical ulcers, etc., are met with, while in the mountains there is a lot of pneumonia and tuberculosis is common and apparently increasing. Typhus, typhoid, smallpox, diseases of the eye and intestinal parasites are encountered in all parts. As most of the people are exceedingly poor, the diseases of dirt and malnutrition are rampant. Epidemics of typhus, smallpox and cerebro-spinal meningitis are common occurrences, while venereal disease is present in alarming proportions. Many of the children suffer from trachoma and other eye diseases.

Work in a Country Clinic

The experience of the writer in one of the clinics staffed by the Friends' Ambulance Unit is typical of that of many of those engaged in this work. Most clinics consist of an out-patient department with a small ward for in-patients. Some of the buildings are of Italian construction and these are usually well-built and roomy, making it possible to have separate departments for the treatment of eyes, venereal diseases, etc. The staff consists of several Ethiopian nursing orderlies, of various degrees of proficiency. As most of the Italian drugs appear to have been given by injection, the primary qualification is the ability to administer intra-venous and intra-muscular injections. Attendance at the out-patient department may be anything up to 100 daily, approximately 50 per cent of which will be sufferers from venereal disease in one form or another. Treatment of venereal disease, especially syphilis, is generally unsatisfactory, as the patient usually ceases to attend when the outward manifestations of the disease have vanished. Scabies, worms (of which tapeworm and roundworm are the common forms) and eye conditions constitute a large part of the remainder. The in-patients are usually cases of malaria and the other fevers, dysentery, bad tropical ulcers and any other case where it can be seen that the patient is unable to visit for treatment, or where it is advisable to have him under observation. Each clinic is equipped with a microscope for the examination of blood films, etc.

Treatment is free, except in the case of syphilis, where a charge is made for N.A.B. injections. The other anti-syphilitics (bismuth and mercury) are given free. The drugs are mainly Italian preparations, large stocks of which were left in Addis Ababa. Use has been made of indigenous plants and shrubs in the preparation of certain drugs, notably in the case of mersine, an anti-helminthic used extensively and with success in the treatment of tape- and round-worms.

The person in charge of a clinic is also responsible for the health and hygiene of the prison and school and for the public health organisation of

the town or village in which he is stationed. The prisons are usually small, dark and dirty, with no cells, no furniture and often no segregation of the sexes. The prisoners are dirty, lousy and badly fed. Attempts are made to have the diet improved where necessary; the prisoners' heads are shaved and they are encouraged to wash their bodies and clothes as often as possible. In some cases the prison governor may be persuaded to put the men to work digging pit latrines in the prison grounds and in the town.

The school is the scene of much work on the part of the clinic worker. Many of the schools are part boarding-schools where orphans are looked after. Here lack of finance is responsible for poor food, lack of clothes, overcrowded sleeping quarters and many other aids to disease. Improvements are being made, however. The Government is providing clothes and attempts have been made to ensure better food. To combat trachoma, scabies, nits, etc., regular parades and inspection of the children are held. One day usually suffices to vaccinate all the pupils and teachers. Schoolmasters are taught how to use sulphur ointment and other simple drugs, and where the man is conscientious and interested, great improvements can be made.

In the public health sphere, the ideal aimed at is the regular inspection of food shops, drinking houses and slaughter-houses; the provision of public latrines; the proper disposal of rubbish and the drainage of waste-water or spraying of larger mosquito-breeding areas. With the co-operation of the local authorities, much may be done to remove the conditions favourable to epidemics. Some of the more intelligent and educated Ethiopians are being trained in this work and appointed as Sanitary Inspectors.

Health Education

In a country where the vast majority of the people are illiterate, where education is limited to the 'Three R's' and is not compulsory, it will obviously be no easy matter to attempt anything in the way of education. The poverty of the people means that the diseases of malnutrition are common, while with those diseases, the diseases of dirt and neglect go hand-in-hand. Superstition must also be overcome. There are many who prefer a medicinal charm, bought in the market-place for a few coppers, to the free treatment given by the hospital. The native 'doctor' pursues his ubiquitous course, and it is no novelty to find a patient who refuses operation at the hospital submitting to the knife of some dirty old native who has achieved a reputation for cures. Most of these people find their way back to the hospital in the end, their last state worse than the first, and poorer in pocket withal. The propensity to prescribe for himself is another trait in the Ethiopian which many medical workers find difficult to overcome. Many patients cease to attend because they have not been given the treat-

ment which they expected and asked for. Injections are very popular, and are demanded for any condition.

It will be realised then, that any educational process will be slow and often disappointing. The school provides perhaps the best ground for sowing the seed, and advantage is being taken of the fact that the doctor is always a welcome visitor there. In general the policy adopted is that of example rather than precept. The Ethiopian will much more readily believe that mosquitoes carry malaria, if malaria in the village decreases when the swamps and pools are drained, than if he is told that this will happen if he drains the pools and swamps. The same applies to all other diseases, but until the economic position of the mass of the people is improved, and until education becomes general and compulsory and is broadened to include much more than at present, the lot of the medical worker in Ethiopia will be hard and disappointing.

FRESH AIR ON VENEREAL DISEASE

By the Rev. George Kendall, O.B.E., C.F. (Retd.)

The venereal diseases, with their immediate effect upon man-power and their terrible legacy for future generations, are no longer to be left shrouded in secrecy, ignorance and neglect. We have brought into the open the discussion of the nature of these diseases, the way they are spread, their wartime prevalence and the urgent need for treatment; but can we not also bring it into the open air?

I think we can and should, and I therefore began an open-air campaign on January 26, 1943, and by August 6, 1944, 134 lectures had been given on Tower Hill, in Lincoln Inn Fields and Hyde Park. The numbers present have reached as high as 500 at one lecture. The accumulated effect of this propaganda must therefore be very great, and in the course of the season many thousands of people must have been reached.

I have found that straight talks upon the venereal diseases and their effects, or upon the meaning and dangers of sex, have proved of most value, and that my experiences as an Educational Officer and a Chaplain attached to the Venereal Disease Hospital of the Army on the Rhine have proved a good background to my talks. Following these lectures, my advice has been sought by many young men and women who, through shame or fear, had hidden

the disease; and I have reason to believe that as a result many of them have eventually gone for treatment.

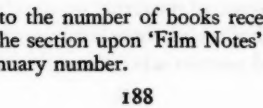
In speaking in the open air, one must use the voice well, be direct in one's utterances, avoid piling on the agony, try to explain as simply as possible the germ origin of the venereal diseases, emphasise the dangers of promiscuous sexual intercourse and so-called sex adventures and, without undue moralising, stress that self-control means self-protection. I most strongly advocate sex instruction of the young by their parents in their early childhood, and by their teachers, clergy and youth leaders later on. In this connection I have given away at these meetings, thousands of the excellent booklets issued by the Central Council and these have done an immense amount of good.

These open-air lectures, addressed as they are to audiences of varied ages and experience and of several nationalities, always lead to a stimulating discussion. So many ask questions and desire guidance that this is perhaps the most valuable part of the meeting. During these discussions the view is often expressed that further powers of compulsion should be introduced, that congenital syphilis could be avoided if blood-tests were carried out early in every pregnancy, and that a blood-test should be made and a clean bill of health obtained before marriage. Questions about brothels always come up, but are easily answered.

The speaker's approach should be based upon an appeal to idealism. It is no good saying "Don't do this or that." The positive side should be stressed and the ideal of a temperate life advocated. The effects of alcohol should be discussed, and the part it plays in blunting the finer feelings and lessening self-control.

The audience should be urged to keep the mind pure and the body healthy, for a healthy body is the best residence for a healthy mind. Self-respect must be prized as a directing force which promotes the true progress of the individual and the nation. As a parson, I find that if I emphasise the sacredness of sex and the value of a godly life, I make a profound impression; and the words of Tennyson have been of the utmost value:

> "Self-reverence, self-knowledge, self-control,
> These three alone lead life to sovereign's power."



We regret that owing to the number of books received for review it has not been possible to include the section upon 'Film Notes' in this issue. This section will be resumed in the January number.

REVIEWS

THE PECKHAM EXPERIMENT: A STUDY OF THE LIVING STRUCTURE OF SOCIETY, by Innes H. Pearse, M.D., and May H. Gower, B.Sc. (Published for the Sir Halley Stewart Trust by Allen and Unwin. 1943. Pp. 333. Illustrated. Price 12s. 6d.)

One cannot read this volume without a feeling that here is something important. One may have doubts about some of the biological deductions, as when "the fact that any 'foreign' or promiscuously introduced substance given in small doses tends to create reactionary allergy, or anaphyllaxis" is used as an argument that "promiscuous intercourse, whether merely casual, or deliberate as in 'trial-marriage,' far from having any use in assisting in making an apposite selection of a mate, is biologically a dangerous procedure"; but these are only minor blemishes on an excellent countenance.

In the Peckham Health Centre—now, unhappily, dispersed by the war—humans are observed and treated, not only as individuals, but as members of a society. Here we see the way to future advance, for *Homo sapiens* is the most social of animals.

Of particular interest and significance is the discovery that only 14 per cent of the males and 4 per cent of the females were in complete health, the remainder all suffering from some disorder, in most cases of a minor character that would be overlooked in a cursory examination. How much healthier and happier may not our people be when we *all* have the opportunity of forming part of a health centre such as this?

No medical practitioner, educationist or sociologist should fail to read this book.—C. B.

HANDBOOK OF DIAGNOSIS AND TREATMENT OF VENEREAL DISEASES, by A. E. W. McLachlan, M.B., Ch.B.(Edin.), D.P.H., F.R.S.(Ed). (Livingstone, Edinburgh, 1944. Pp. 364. Figs. 159 (19 in colour). Price 15s.)

Dr. McLachlan is to be congratulated on so successfully accomplishing his object, set out in the preface—"to provide a concise introduction to the principles of diagnosis and treatment of venereal diseases, suitable for the instruction of the elementary student, yet adequate for the needs of the busy practitioner desirous of quickly refreshing his knowledge or treating cases in his own practice." One feature of this work calls for special comment: it is essentially a book that teaches. There can be few doctors who would not learn much from its perusal, and study of the photographic illustrations will prove a real help in diagnosis to those who have not had the advantage of the author's wide clinical experience.

Although this book deals exclusively with the medical aspects of V.D., and propaganda finds no place in it, readers will remember that it is to Dr. McLachlan that much of the credit belongs for instituting the 'Tyneside Experiment,' which has shown an example to the rest of England in tackling the increased incidence of venereal disease.—R. F.

CHANGING BRITAIN. Illustrating the Industrial Revolution. 1750–19.. (University of London Press. 1943. Pp. 36 illus. Price 1s.)

This brilliant educational booklet sets a new standard in visual presentation. It tells in charts and pictures the story of the Industrial Revolution: shows its effects on the condition of the people and the physical development of Great Britain, and proceeds to a brief but very lucid statement of the issues of town and country planning now engaging public discussion. Having thus aroused interest in the wider perspective, it ends by focusing attention on the

student's own town, with suggestions to schools as to how the interest may be followed up by class projects. Of all the popular booklets designed to spread knowledge and stimulate thought on the current problems of human environment this is by far the best. The compact letterpress is clearly and simply worded, the facts reliable, the diagrams intelligible as well as very attractive, the illustrations well chosen, and the lay-out and printing most admirable.—F. J. O.

ACHIEVEMENT IN FEEDING BRITAIN. (Pilot Press. 1944. Pp. 36. Figs. 68. Price 2s. 6d.)

This lucid, brightly written, thumbnail description of the accomplishments of the Ministry of Food is worth reading. The subject is so immense and diverse that little detail can be included in the few thousand words of reading matter. This lack of detail is often tantalising. The illustrations, mainly from official sources, are profuse and vivid. One picture is unfortunate, giving a false impression of the times—a fruit and vegetable counter in 1941 displaying peaches, melons and the like.—E. R. B.

INDUSTRIAL NURSING: ITS AIM AND PRACTICE, by A. B. Dowson-Weisskop. (Arnold. 1944. Pp. vii+159. Price 5s.)

This refreshingly human little book should prove invaluable to all concerned with Industrial Health. It is both up-to-date and practical, and a real mine of detailed and instructive information.

With her shrewd assessment of the problems facing the industrial nurse, the writer combines a deep understanding of personal and industrial relationships, and of the need for co-operation from all concerned. This is particularly well brought out in the excellent chapter on the adolescent in industry.

Her approach throughout is realistic and full of understanding, both of the day-to-day needs of an industrial health service and of the scope for its future development.—J. Mc. M.

AN INDUSTRY OF HEALTH BEING AN EXPOSITION OF 'ASSUMPTION B,' by T. B. Layton, D.S.O., M.S., F.R.C.S. (Heinemann. 1944. Pp. 96. Price 3s. 6d.)

This little book describes the organisation (though some might prefer to call it disorganisation) of medical care in Britain and the author lays his finger neatly on the disadvantages of the system. All this is done clearly, and it is of real use to anyone wishing to understand Sir William Beveridge's plan and the implications of the White Paper in an intelligent and constructive way. He gives a cogent description of how the system of medical industry should be developed. By medical industry he means the co-operation of practitioners with all the ancillary members of the health team. In this he includes a chapter on almoners closing with the words "There is a great future for the work of the almoners and a great responsibility on the leaders of their Institute." It is difficult to see what place almoners would have in the National Health Service, however. There are some points on administration with which neither administrators nor Mr. Layton's colleagues are likely to agree. But the book is an illuminating one, and will be really useful to any layman who wants to know what 'Assumption B' is about.—W. P. K.

THE CHEMISTRY OF LIFE, by J. S. D. Bacon, M.A., Ph.D. (Watts.—Thinkers' Library—No. 103. 1944. Pp. 118. Price 2s. 6d.)

"An easy outline of Biochemistry"—so the sub-title promises. The book has no chemical formulae, no structural formulae, no tables, no figures and just two diagrams. Was it believed that the general reader would be frightened off by technical symbols and illustrations? For whom, then, is the book intended?

Those with no knowledge of the sciences will probably get little out of it, beyond a few catch phrases which might come in useful to impress those who have not read it. For the serious student of biology it will open vistas to a new world of ideas and discoveries, and will whet the appetite for more. For them the book would have gained enormously by the inclusion of illustrative material. The book is well written, accurate and up-to-date, and represents a much needed complement to the current text books. It is crammed with facts and very good value for money. There is no index, but a useful glossary. —G. F.

MAN STUDIES LIFE, by G. N. Ridley. (Watts—Thinkers' Library—No. 97. 1944. Pp. 109. Price 2s. 6d.)

One agrees with the author that the average reader of a text-book on biology has little conception of the difficult stages by which man has come to his present knowledge; of the trials and the errors as workers have groped their way forward. The book is a brief summary of some of man's efforts to 'Study Life.'

The botanical side of the subject is not, perhaps, so well treated as the zoological, but the book may well be recommended to all interested in biology.

The glossary will prove useful to beginners, but why not aid them further by indicating the pronunciation of the words given?—W. W. A.

THE A. B. C. OF PSYCHOLOGY, by C. K. Ogden. (Pelican Book. 1944. Pp. 144. Plates iv. Price 9d.)

This book is much more than an A. B. C. of psychology, it is a veritable alphabet. It is clearly and concisely written and well balanced, and correct emphasis has been given to each aspect of the subject.

In particular Chapter Nine—'Man's Linguistic Heritage'—must be mentioned since it is the key to all human understanding. The author has shown an objectivity and lack of bias which is as rare as it is refreshing. This little book should be read by every student of psychology—and by every teacher. E. C.

YOUR NEW BABY, by Eve Brent. (Feature Books. 1944. Pp. 60. Price 2s. 6d.)

This fascinating little book should be the *vade mecum* of every woman who hopes to become a mother. Written in a delightful style—warm and friendly and reassuring—it is, in fact, a faithful recording of the experiences of a wholesome and practical woman. The author has carefully noted the physical, emotional and psychological experience along the route to the great adventure of motherhood. A well-thought-out and sound regimen is evolved which should inspire confidence in a young mother-to-be and show her the way to enjoy the happy days of preparation and lay the foundation of a sound plan for rearing a healthy baby. Not the least valuable feature of the book is the appendix of practical patterns for baby's layette, well-planned and hygienic.—F. A. O.

CORNER DOCTOR, by George Wosnon Vandegrift, M.D. (Herbert Jenkins. 1943. Price 15s.)

This is a delightfully written story, purporting to portray the life of a New York doctor at the close of the last and the beginning of this century. As a life-story, it is full of humanity, energy and wit, and its many eccentricities make pleasant reading. As a physician's biography, however, it may easily lead to a misconception of the true life and the day-by-day activities of a medical man and of the hardships and disappointments he has to endure before the golden gate to success is opened to him. This

biography may be characteristic of America, but I dare say that 'Corner Doctors' in this part of the globe have set themselves higher ideals, both personally and professionally.—K. S. R.

CAMP AND TRAIL, by S. H. Walker. (Woodcraft Folk, 13, Reitherdon Road, London, S.W.17. 1944. Pp. 112. Profusely illustrated. Price 3s.)

The main theme of this book is the desirability of at least temporary escape, especially for growing children, from the limited life of the town. It explains how to keep country holidays and excursions both enjoyable and healthy. Camping with equipment made at home in all the joy of creative effort; the subsidiary skills of camping—firelighting, axemanship, cookery, tracking—where proficiency affords considerable self-respect; and finally, all the lore of the forest, fill this book with possibilities that will fire the imagination of all children. A particular point of the book is its wealth of excellent illustrations.—P. W.

SHORT NOTICES

THE POCKET BOOK OF FIRST AID IN ACCIDENTS AND AIR RAIDS (including Chemical Warfare), by E. M. Cowell, D.S.O., T.D., D.L., M.D., F.R.C.S. Revised edition. (Gill. Pp. 92, figs. 50. Price 1s. 2d.)

Will be useful especially for teachers, youth leaders, and civil defence workers.

THE LECTURE POCKET BOOK (For First Aid and Ambulance Students), by Kenneth Black, M.B., B.Chir. (Cantab.), M.R.C.S., M.R.C.P. (Gill. Price 1s. 2d.)

Coloured and annotated charts illustrating the human skeleton (including fractures and dislocations), circulation, viscera and respiration.

HEALTH TALKS FOR BOYS. (Scottish Youth Leadership Training Association, 57, Melville Street, Edinburgh, 3. Pp. 52. Price 1s.)

A useful handbook for youth leaders who intend giving talks on health (including sex) to club members.

SO YOU'RE GROWN UP NOW! by Arthur C. Gee, M.R.C.S., L.R.C.P., D.P.H. (Bristol: John Wright & Sons. London: Simpkin Marshall. Pp. 31. Price 1s.)

A simple outline of sex and reproduction for adolescents. Unfortunately it is unillustrated, and says nothing on the subject of masturbation, but it does not burk the issues of sexual pleasure and contraception as so many booklets do.

THE DIAGNOSIS AND TREATMENT OF DELINQUENCY, by Edward Glover, M.D. (Institute for the Scientific Treatment of Delinquency, 17, Manchester Street, W.1. Pp. 32. Price 1s.)

Should be read by all who feel that, where possible, delinquency should be treated rather than punished.

HEALTH AND THE STUDENT (National Union of Students and other Student Organisations, N.U.S., 3, King's Parade, Cambridge. Pp. 24. Price 4d.)

Surveys present health facilities and insurance schemes in British Universities and Colleges, and makes suggestions for their improvement. Includes a section on Health Education.

HOUSING AND HEALTH, by Sir John Boyd Orr and Frank Wells (Dent. Pp. 31. Price 6d.)

Published for the Co-operative Permanent Building Society (but with complete freedom of expression for the authors) this pamphlet contains much interesting information and valuable statistics.